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Dura-Europos

by J. W. CROWFOOT

Excavations at Dura-Europos 1933-36, pp. 461, 57 plates and numerous illustrations. Excavations, 1935-36, part I, pp. 270, 30 plates and numerous illustrations. Yale University Press; Humphrey Milford, London. 33s 6d.*

DURA is one of the buried cities which has swum into our ken since the end of the last war. Some paintings accidentally uncovered by a British officer first led Breasted to the site. He was followed by Cumont and in 1928 a large expedition under Professor Rostovtzeff was sent there by Yale University and the French Academy of Inscriptions. By 1937 about one third of the site had been excavated and work was suspended through lack of funds.

Dura has been compared with Pompeii but it would be hard to imagine two places more dissimilar in appearance and history. Unlike Pompeii, Dura is a grim looking site: its most striking features are the west wall on the desert side and the citadel above the Euphrates, both built of dull grey gypsum blocks: between them stretches a waste of mud brick walls. And its history covers a far longer period. Once the site of a small oriental village, it was converted by the Macedonians into a strong-point on the road between Antioch on the Orontes and Seleucia on the Tigris; the date of its foundation is not known, but Seleucus I was regarded as the founder and it must have been about 300 B.C.

The Seleucid kingdom began to crumble after the middle of the 2nd century B.C., and Dura fell eventually into the hands of the Parthians but again the exact date is not known. Being on the caravan road from Palmyra to the east, it flourished exceedingly when there was peace between Rome and Parthia; when there was war it suffered the usual fate of frontier cities and passed ultimately under Roman rule about A.D. 165. Some decades later the Romans made it the headquarters of the officer commanding the Euphrates frontier forces, and about A.D. 256 the new Persian power of the Sassanids became so threatening that the authorities in a fit of Maginot-mindedness built enormous embankments against the west wall both inside and outside the city. The embankments inside the city completely buried all the buildings near the wall, including several newly decorated sanctuaries, among them a synagogue and a church, and it is these which have made the name of Dura famous.

* We are indebted to the Oxford University Press and the Yale University Press for allowing us to reproduce the plans.—EDITORS.

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The history of Dura seems therefore to fall into three periods, Macedonian, Parthian and Roman; but, so far as we can tell, the change of masters did not make the sweeping changes that might have been expected. Descendants of the old Macedonian families continued to hold a prominent position throughout, and on a relief in the Palmyra style which is dated A.D. 159, when the suzerainty was hanging in the balance between Rome and Parthia, Seleucus I is still represented as the founder of the city. At the same time we must not think of these late Macedonians, whether or not they had preserved the purity of their blood, as being like their forefathers; in all probability they had changed like those the Turks call freshwater Europeans. The first colonists had set out to build a brave new world but the next generation, or the generation after that, had reverted more and more to the custom and culture of the land. That is the conclusion which is borne in on one by a study of the recent discoveries.

The two volumes listed above are the last in the series of admirable *Preliminary Reports* which Professor Rostovtzeff has issued on the progress of the expedition. Each season the bearing of the finds has become clearer, and we turn first to the latest volume which gives an exceptionally full picture of developments in the centre of the town.

THE AGORA

Chapters II and III describe how a vast area in the middle of the city which was originally laid out as a normal Hellenistic agora was gradually transformed into a warren of houses, shops and alleys, such as may be seen in the *sug* or bazaar quarter of most oriental towns. The exploration of the upper strata was begun by Cumont as long ago as 1923 but the clearance to bed-rock of a large portion was only finished in 1937, when all digging at Dura was suspended: more than three-fifths of the total area has now been excavated completely or in part, much of it under the direction of Professor Brown, who is the author of these chapters. The original plan was easy to disentangle once virgin-rock was reached and, though little of the building survives, its elucidation throws fresh light on the lay-out of the whole city and its relation to other foundations of the period. The final stage was also clear but, as the site was continuously occupied for more than five centuries and there was no major destruction, only a few of the intermediate stages in different portions of the area can now be satisfactorily determined. If, and when, the rest is excavated, further discoveries should be made but it looks as if Brown has already laid his finger on the more significant steps in the process of transformation.

The fragmentary remains on the rock show that the agora belongs to a group of buildings in Dura which includes the socle of the west city wall, the palaces of the citadel and the redoubt, the temple of Artemis and Apollo, that of Zeus Olympius and at least one unexplored structure (p. 19). The plan of these buildings, their purpose and construction, the use of large squared stones, in particular rows of great orthostats, the cubit and foot lengths which recur both in the plans and the materials, distinguish them from later works on the site. The agora occupied the canonical position in the centre of the town north of the main street which ran from east to west. Like other Hellenistic cities Dura was laid out on a grid composed of rectangular building blocks intersected by streets of varying width (FIG. 1). Thanks to the precision with which the agora was planned, the original size of blocks and streets can be determined exactly: the streets were 18, 24 and 36 feet wide and the blocks were 200 by 100 feet, a ratio which appears to have been adopted in other Seleucid foundations (Antioch, Apamea, Laodicea, Damascus, Aleppo) in contrast with the arrangement in earlier cities such as Miletus, Priene and Olynthus where the blocks are more elongated. The agora spread over eight blocks,

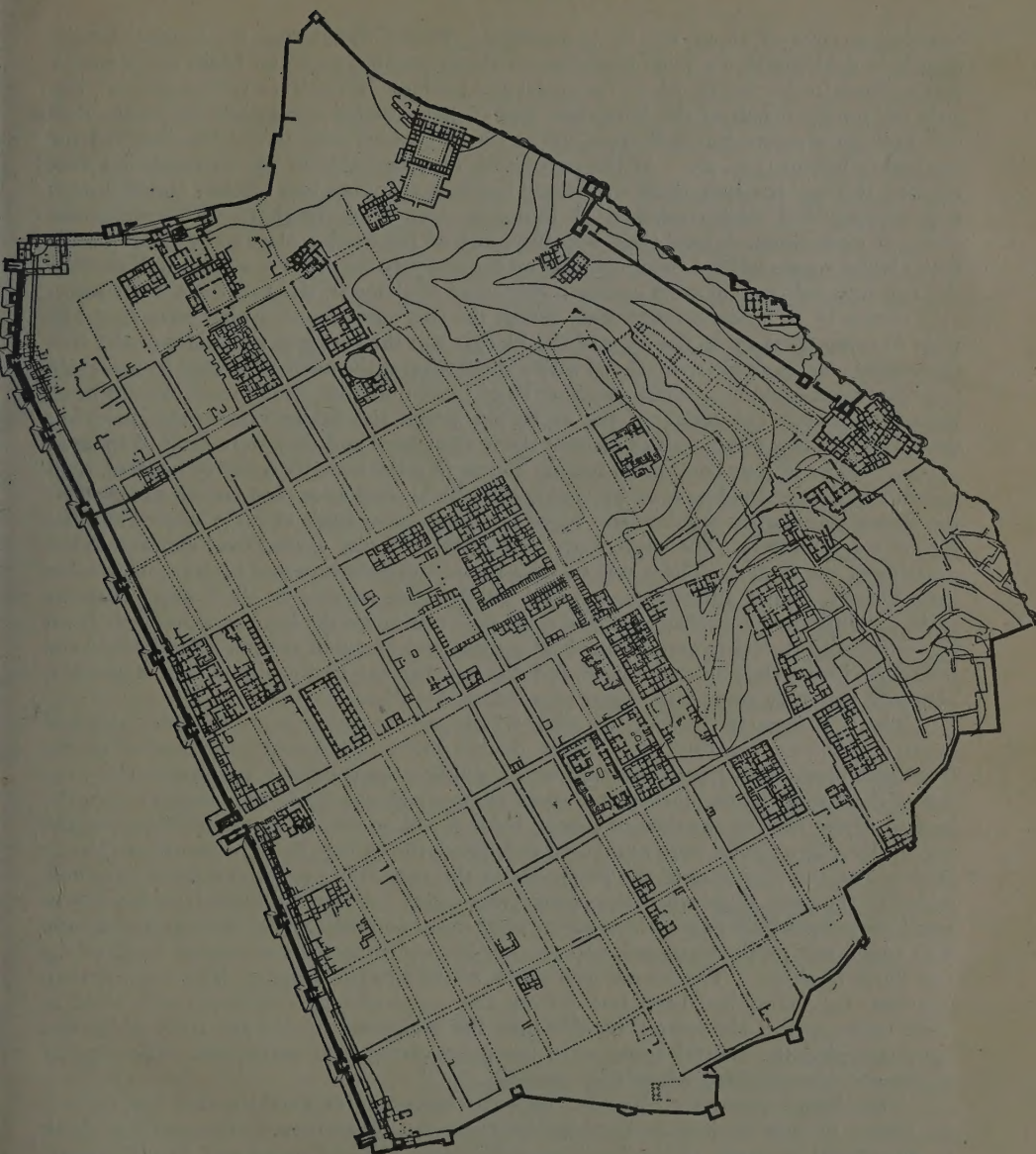


FIG. 1. DURA-EUROPOS
Drawn in 1938 by A. H. Detweiler from a survey made in 1935

covering an area of about 160 by 150 metres. Brown thinks that the original design may have contemplated a huge horseshoe of shops opening south on Main street with a vast expanse in the middle where the social and business life of the city was centred, but only the northern half of the horseshoe was actually carried out and an enclosure wall was built to separate this half from the south half which may have been reserved for temporary booths (FIG. 2). At the north end, on either side of the north-south street running through the area, there was a long building spanning two blocks: the buildings were symmetrical, each contained 48 rooms in four rows, 12 shops with rectangular store- or work-rooms behind them opening south on the market place and another twelve with similar rooms behind them opening on the street to the north: a solid wall divided the two internal rows of work-rooms: each pair of shops in the two rows was square, 5.37 metres or 10 cubits on each side, except the two outer rooms which were 12 cubits wide to bring them up to the edge of the block. On the east and west sides of the area there were lines of single room shops with a short wing at the north separated by a passage from the main buildings. The upper walls of these buildings which were of mud brick have disappeared but much of the socles on which the bricks rested has survived: they stood about 4 cubits (2.148 metres) above floor level and they were built of squared gypsum blocks in four courses—a footing course of stretchers, then one of headers, then one of orthostats (2 cubits long by .775 metres high), and a capping course of headers: the stones were cut to regular sizes based on the Samian cubit of 0.537 metres and the foot of 0.358 metres. The shop floors were of tamped clay spread over chips from the dressing of the stones. There was no trim round the doorways and no trace of wooden door fittings. Tiles and antefixes found on the spot suggest to the editors that the main buildings had a pitched roof, the ridge pole resting on the long partition wall down the centre and the tiling carried on short purlins and common rafters. As restored the buildings look extraordinarily bare and the mechanical uniformity which dominates plan and materials stamps the hand of a Seleucid military engineer.

The first departures from this plan which can be recognized date from the last quarter of the 2nd century B.C. Three double shops at the south-west corner of the large east block were then converted into a public record office: partition walls were demolished, some doors blocked and a new one opened, the floors were raised and in the biggest of the new rooms tiers of pigeon holes for filing archives were built against the walls; the pigeon holes were numbered and dated, the earliest dates being 125–121 B.C.: these dates, the character of the potsherds in the new filling and the type of trim now added to the door show when the change was made. About the same time a series of small houses was built encroaching on the open space on both sides of the south enclosure wall which was partly destroyed, and another house obstructed the passage north of the east block of shops. The transmogrification of the site had begun. The original shop quarters, no doubt, had been leased from the authorities by tradesmen who lived in some other part of the town: by this time the temporary booths and stalls which had once occupied the central space were being converted into permanent structures by tradesmen who squatted where they worked.

The change may have coincided with the beginning of Parthian rule but there is no reason to connect it with Parthian interference. Elsewhere Rostovtzeff has dwelt on the liberal character of the Parthian philhellenes (*Dura-Europos and its art*, p. 40): though many oriental temples were built in the Parthian period, especially between 50 B.C. and A.D. 150, 'the leading rôle in the life of the city continued to be played by the Macedonian aristocracy'. And when, as for long periods, peace reigned between Parthia and Rome, Dura was a prosperous place. In the course of the next two centuries,

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say by about A.D. 100, half the open space of the agora had been filled with shops and dwellings to which new alleys gave access. The agora, in fact, had become a bazaar and 'the bazaar', to quote Brown, 'as an expression of concentrated urban economy is the antithesis of the agora or open market place. It is essentially a close-knit, permanent nexus of streets lined with shops. Behind or in connexion with the shops there may be dwelling places, places of manufacture, or warehouses, but the essential is the avenues of circulation and the crowded places of sale' (p. 53). A plan (fig. 14 on p. 44) shows the stage which may have been reached about the turn of the 1st and 2nd centuries A.D. It may be natural for an American to describe the change as due to the *orientalization* of Dura but the crooked lanes and general planlessness might be paralleled nearer home in the old city of London or any other European town where private enterprise has been free and uncontrolled.

A second plan (FIG. 3) shows a still later stage, that of A.D. 256, after the city had been in Roman hands for nearly a hundred years. The open space had shrunk to about one eighth of the original area. I venture to suggest that the increased congestion may have been caused by evacuations from the north quarter of the city which was requisitioned as a military camp at the beginning of the 3rd century. In the bazaar this period is distinguished by the addition of a series of colonnades and porticoes, the columns built of rubble work with capitals not Corinthian like those at Palmyra and elsewhere, but in the local version of the Doric style. A small market place was also now laid out, it covered about half one of the old blocks in the southwest of the agora; rows of shops ran along two sides, porticoes along the others, the porticoes measuring 100 Roman feet in length (the Roman foot = 0.296 metres); it was obviously planned on the pattern of a small forum. When the end came the area contained 56 private dwellings and 182 shops or 235 if the shops in the side streets beyond the original agora be included. The houses, of which 32 have been fully excavated varied widely in size: many contained only five or six or fewer rooms built, in the Babylonian fashion, round a court with a cœs-pool in the middle; the largest which dates from early in the 2nd century had 24 rooms and 2 courts.

Of the small finds the most interesting is a bronze plaque which is discussed in a learned appendix by Professor Lehmann-Hartleben; it was apparently a military standard finial. Two at least of the houses contained important series of dipinti, the house which served as the public record office and a small five-roomed house which was the temporary headquarters of a touring company, or companies, of entertainers who visited Dura shortly before its fall; the names of 34 women and 24 men are given and the dates when they arrived from Zeugma on the Euphrates; most of them were slaves, one is described as an old prostitute. A full publication of the latter series is given by Dr H. Immerwahr in a second appendix.

THE FORTIFICATIONS

On three sides Dura was naturally protected, on the east by the Euphrates, north and south by deep valleys; on the west it was exposed to attack from the desert. The wall on this side is the most spectacular of the ancient remains: it still rises to the height of the sentry-go and even the parapets with their wooden defences can be confidently reconstructed. From north to south it measures about 800 metres; a monumental gate flanked by towers opened on Main street some 300 metres from the southwest corner tower; between the corner tower and the gate three rectangular towers project from the wall, the length of the curtain walls between them being determined by the range of a bowshot; five similar towers rise north of the gate and then the plan changes,

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the line bends at an obtuse angle towards the north valley and the towers are closer together. The plan goes back to the beginning of the Hellenistic period but the structure is of different periods : the first wall was built like the walls in the agora of mud brick

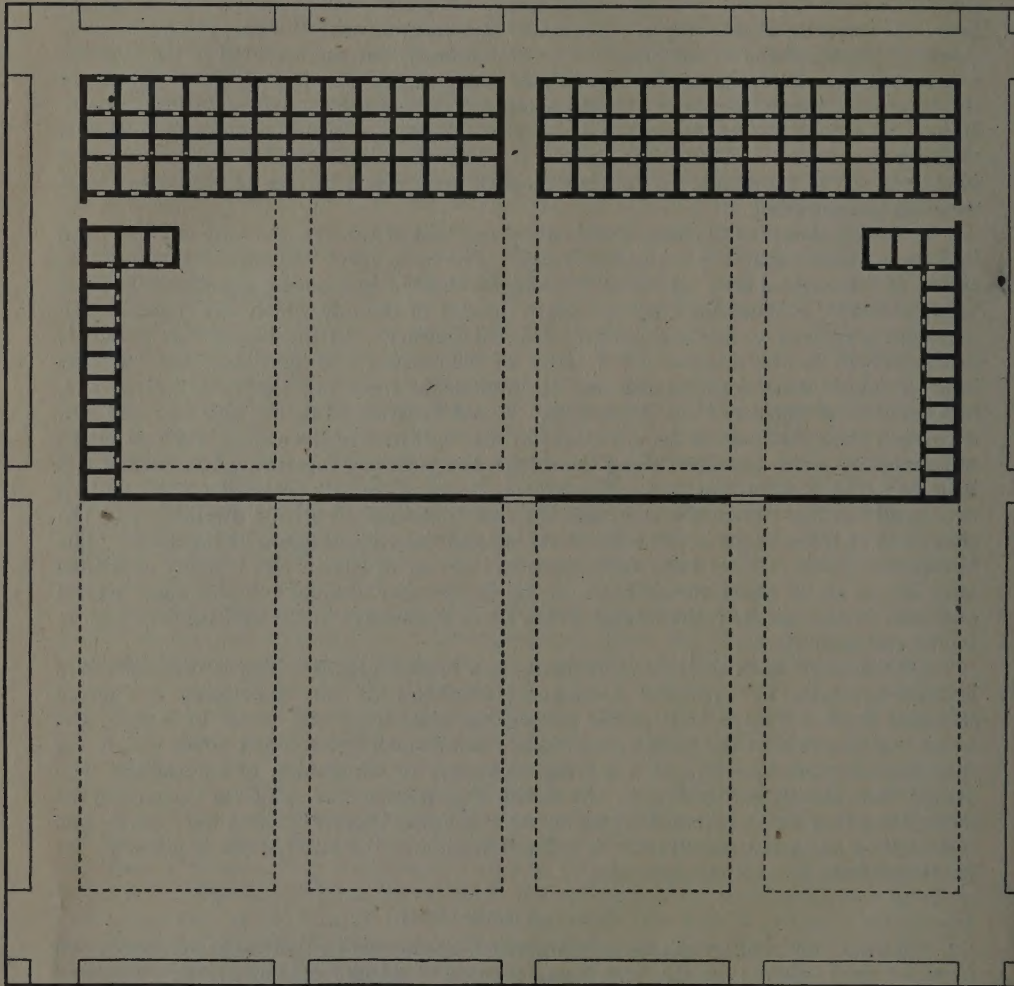


FIG. 2. SELEUCID AGORA BUILDINGS. RESTORED PLAN

on a stone socle, in parts of the socle the same orthostat courses recur, and the dimensions of the stones and the planning of towers, curtain-walls, doorways and so forth were based broadly on a cubit of the same length. A minute study of the wall by Dr von Gerkan fills the first chapter of the earlier volume. Dr von Gerkan visited Dura in 1934 and since

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that date several new facts have come to light which affect the conclusions he drew about the structural history of the wall, some mentioned in footnotes in this volume, others in later writings by Rostovtzeff. It now seems probable that most of the stone masonry

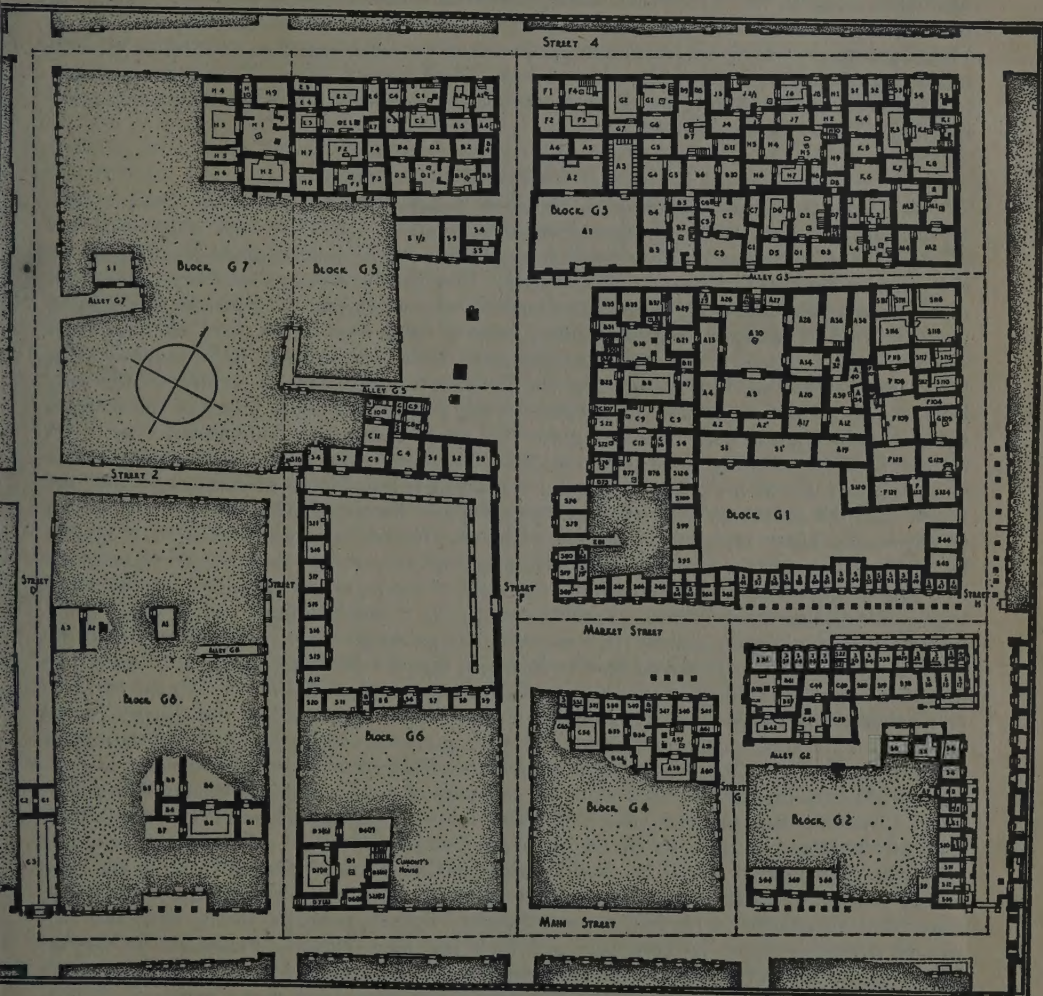


FIG. 3. SECTION G. FINAL STATE OF AGORA. RESTORED PLAN. The broken lines at sides represent 60 metres

which replaced the early brick work was built not by Parthians but by later Hellenistic rulers, possibly Antiochus III or V, and the last reconstruction is 'dated definitely to the years following A.D. 216' (p. 40 footnote). Dr von Gerkan's account of the gateway calls for criticism: a change in the alignment of the walls a few metres north and south of the

flanking towers and breaks in the masonry at the points of divergence prove an alteration in the plan; he suggests that the alteration consisted in the adoption of a gate with a straight passage in lieu of one at right angles which would have exposed the enemy's unshielded side to the wall—'the strategically more advantageous plan was renounced in favour of the more monumental' (p. 6). This explanation seems doubtful. The 'bent gateway' which was common in pre-classical days was first re-introduced into military architecture by the Abbasids according to Creswell (*Early Muslim Architecture*, II, 23-30 and 392), and in this case we must look for another solution, perhaps a reduction in the size of the flanking towers.

TEMPLES

A Mithraeum and five temples, those of Adonis, Zeus Theos, the Gadde, Zeus Kyrios and the Necropolis, are described in chapters II-VII. They are only a fraction of the score of religious buildings which have been found, according to Rostovtzeff, in the third of the city that has been excavated. The people seem to have been more and more preoccupied with religion as time went on; all the temples described in this volume were restored or enlarged more than once, some of them doubled in size; the middle of the 2nd century A.D. was the period of greatest activity perhaps but three sanctuaries at least, the Mithraeum, the Church and the Synagogue, were built or rebuilt in the very last decades of the city's life. Though varying widely in details, most of the temples share certain features and conform more or less to a common Babylonian type. An altar of incense generally stood in the middle of an open court with the sanctuary at one end: walls, built of mud brick on a foundation of rough blocks of stone, screened the court, and the sanctuary was in some cases further insulated from the profane by an empty walled alley: rows of chambers with seats round them were often built against the walls of the court: small edicules with paintings or carvings were sometimes erected by pious members of the congregation: the walls of the principal sanctuary were covered with painting like many eastern churches today. In a few buildings which were buried under the embankments against the west wall, the paintings were well preserved and the best of them, skilfully removed by Mr Pearson, may be seen at Damascus or Yale; in others they have been reconstructed from fragments found on the floor. In the Mithraeum (chapter II) a cult niche symbolizing a cave stood at the end of the court; it was approached by seven steps and decorated with pictures of the life and apotheosis of Mithra, signs of the Zodiac, and figures in Perso-Palmyrene dress of two magi or prophets of Mithraism; on the sidewalls were portraits of donors engaged in acts of worship, offering incense and so forth, like the better known figures of Conon and his fellows found by Breasted on the near-by temple of the Palmyrenian gods: Rostovtzeff proposes to devote the whole of one of his final volumes to this shrine. The end wall of the naos in the temple of Zeus Theos (ch. IV) was covered with a colossal figure of the deity, a four-horsed chariot to his left, some subsidiary figures, perhaps, to the right and two winged victories above—a composition which has been cleverly recovered by Brown from a multitude of fragments: the paintings on the side walls he restores on the analogy of other temples as a representation of lines of worshippers in three registers. Comparatively little carving has been found but some characteristic reliefs in the Palmyrenian style, dated A.D. 159, come from the temple of the Gadde (chapter V). These remains give a lively picture of the externals of Duran religion, and inscriptions, dipinti and graffiti, some of them with accounts of the cost of sacred meals, add interesting details but there is much more we should like to know. The Greek names of the gods no doubt conceal more or less Hellenized Semitic conceptions and it is remarkable that no trace of

an Iranian cult has been discovered as yet : we should like to ask—and the answer may well be forthcoming—whether the same individuals attended more than one temple ?

The art is disappointing. The people who ordered the temple decorations were successful merchants who had amassed wealth in the Palmyra caravan trade ; they were content if they could bedizen their women with heavy jewellery and their temples with the traditional pictures ; they did not strive to create beauty *quod visum placet*. The houses and temples were Babylonian, not Hellenic, in plan and, though Hellenistic influences are obvious, the spirit of the paintings is Mesopotamian ; the artists who have signed the paintings bear Semitic names. The art has been discussed by Rostovtzeff in a long essay which recalls the old controversies raised by Strzygowski (*Yale Classical Studies*, v, 1935, pp. 155–304). In contrast with the representational naturalism of late Hellenistic art, these works are characterized by linearity, one (? two-) dimensionalism, frontality and what he calls ‘ verismus ’ by which he means a minute rendering of external details of costume, armour, jewellery and the like : to these characters he adds, with a little hesitation, spiritualism. This hesitation will be shared by many in front of the actual paintings at Dura ; we can see little more than a certain hieratic gravity in the best of them. In the secular art, as represented by hunting scenes drawn on walls in private rooms or painted in the Mithraeum, he traces the influence of the nomadic art of Central Asia brought to Dura perhaps by the Parthians, but we miss the vitality of the original. Various remains of sculpture and painting are published in these volumes : the feeblest are those which are based most closely on Hellenistic motives, figures of Hercules, Venus Anadyomene, and Apollo Citharoedus for example ; they remind us of the grotesque figures in the round which Garstang found on the town site at Meroe. (It may be worth noting two other parallels between Dura and Ethiopia—the crosses which decorate the garment of Aphlad in *Yale Studies* figs. 36 and 38 and those on a figure at Nagaa in Budge *The Egyptian Sudan*, II, facing p. 144, and the frontality of the principal god in the same temple, *ib.* p. 140). Of exceptional interest are an ivory plaque of Scythian workmanship and three painted wooden shields which were doubtless imported from some Roman arms factory in Syria or Asia Minor, both well described by Clark Hopkins in the earlier volume, chapters VIII and IX. One of the shields has scenes from the siege of Troy, the second battles between Greeks and Amazons, the third a warrior god, possibly the Syrian Arsu. A learned disquisition on the traditional elements in these representations is provided by Hopkins.

These volumes are called Preliminary Reports and a series of seven Final Reports is in course of preparation—one fascicle has already appeared—but it is obvious that so far as most of the monuments are concerned, the agora for example and all the temples except the Mithraeum, they contain the last word of the expedition. They are amply illustrated : each volume with a definitive plan of Dura by Mr A. H. Detweiler, a multitude of figures in the text, plans, details and reconstructions, mostly by Mr H. F. Pearson, and numerous plates, including some in colour from paintings by Mr H. J. Guthe. In the earlier volume the coins are discussed by Mr Bellinger and the inscriptions by Mr Welles, Mr Torrey and others. Professor Rostovtzeff and Professor Brown, who has been Field-Director during the latter seasons, are warmly to be congratulated.

Carausius: his Mints and his Money System

by HAROLD MATTINGLY

CARAUSIUS, our British Emperor, has not been too badly served by commentators. He first attracted the wayward and erratic genius of Stukeley, (1) then, after a long interval, the solid and devoted labours of Webb. (2). Of Stukeley little can be retained beyond a handful of brilliant guesses. Webb, on the other hand, has laid the foundations of a 'Corpus' of the coinage and has succeeded in stating most of the problems of the reign and solving many of them. But still there is room for a history of Carausius, in which the very scanty literary evidence shall be reinforced by the evidence of the coins, when the pure gold has been extracted from the masses of rough ore. There is perhaps not a very great deal to add to Webb's materials, but a great deal of sorting remains to be done. Included in his lists are many coins of a more or less barbarous character—ancient, but the product of no regular mint. Inside each mint, the order of mint-marks must be established and the types classified under them; only so can we venture to interrogate the types for their meaning. Here is a task of great interest and promise for a young scholar. No disparagement of Webb's fine work is implied. Books as good as his ought to have progeny.

In this little paper, I confine myself to questions of mints and monetary system, only occasionally glancing at other problems.

The chief mint of Carausius, far more prolific than any other, is that which signs L. It continues after A.D. 296 to strike for Diocletian and his colleagues as L or LON. There is no possibility of doubt that it is London. Second in importance comes the mint that signs c, rarely CL or CC. (3) It has usually been taken to be Camulodunum, less commonly, Corinium (Cirencester). I think that the balance of evidence certainly tilts in favour of Stukeley's suggestion, Clausentum (Bitterne); it is one of those few cases in which his intuition was triumphantly right. It is agreed by all that the rare CL coins are of exactly the same style as the c ones. CL is obviously appropriate for Clausentum, obviously not for Corinium. It will only suit Camulodunum, if one can persuade oneself that CL, not CA or CD, is the natural form, if two letters are to be used at all. CC occurs side by side with CL (4). Applied to Camulodunum, it might be read as 'Colonia Camulodunensis'—a mint signature for which there is no parallel. We might just as well guess at some reference to the fleet (*classis*) at Clausentum. It is of course to the temporary importance of the fleet, partly based on the Isle of Wight, that the choice of Clausentum as mint-city would be due. A comparison of the coin-types of c with those of L and RSR (see below) seems to clinch the question. c and RSR both have the 'advent' type of *EXPECTATE VENI*, the early programme type of *RENOVAT ROM*, She-wolf and twins, and the naval type of *FELICITAS AVG*, Galley; all of these are missing at L. c has *ABUNDANTIA AVG*, analogous to RSR's *VBERTAS AVG*, both again missing at London. So too *Allectus* has *FIDES EXERCITVS*, *FIDES MILITVM*, *VIRTVS EXERCITVS* at c and not at L (5). It is suggested that there is strong evidence that both c and RSR were ports and stations of troops. There is no strong evidence from finds to help us. L always outnumbered c—

¹ *Medallic History of Carausius*, 1757.

² In *Num. Chron.* 1907, and vol. v 2, pp. 426 ff. of Mattingly and Sydenham, *Roman Imperial Coinage* (hereafter quoted simply as 'Webb').

³ Webb, p. 483, p. 216: in n.1 he quotes from Stukeley CLA, but as unverified and doubtful. For *Allectus*, see Webb pp. 565 ff, no. 69, 79, 105, 108, etc. ⁴ Webb, p. 483, nos. 217-9.

⁵ All these coin-types can readily be checked in Webb's lists. The argument from types must be used carefully. London has types of the army and many legions; yet we have no reason to think it was a garrison town.

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often very considerably. In one hoard from Essex the c coins were nearly half the L in number. But this sort of evidence is not enough to turn the scale. The coins of both mints no doubt travelled freely in Britain.

The various marks, additional to L and c (except XXI, for which see below) certainly mark issues following one another in succession. At present we are simply reduced to guessing if we try to expand them, e.g. BE into 'Bonus Eventus' or SP into 'Salus Publica'. An arrangement of the coins under issues is obviously the next step in advance.

Next in order comes the mint that signs RSR—for one mint it certainly is, even if some of the recorded specimens are 'barbarous' imitations. We have just seen how, like c, it seems to have had a special interest in Carausius' first arrival and to be a port and station for troops. As it celebrates one legion, and one legion only, LEG IIII FL, we must infer that troops of that legion were stationed there; the normal quarters of the legion were in Gaul, but it need only have been a detachment (*vexillatio*) that accompanied Carausius. The mint, then, is clearly Rutupiae (Richborough), the door of Britain to the Continent. Here again Stukeley guessed well. But Rutupiae accounts for only one letter of the signature; an s and a second r remain. The most probable guess is 'Rationalis Summarum Rutupii' (6). Allectus was chief financial officer of Carausius, an office correctly described by the term 'Rationalis Summarum'. His later history proves that he was ambitious, and it would not be surprising, therefore, if he left his mark on the coinage.

Two coins, one found near Wroxeter, the other first noted in a dealer's tray, bear the mark BRI. Webb inclines to regard this as a rare use of the provincial name, BRITANNIA. I, personally, have no doubt that Hill was right (7) in taking BRI to equal VRI and be the signature of ancient Wroxeter, Uriconium, or, more properly, Vriconium.

These two coins open the door to further speculation. The reader of Webb will soon find that apart from coins of the regular mints L, C, RSR, apart too from the barbarous imitations, there are whole series of decent, well-struck coins, either bearing no mark at all or only such marks as SP, SC, which we take to be marks of series, not of mints. As Webb observes, many of these show a style that may be called either that of L or of c. Under Allectus this class of issue stops. How are these coins to be regarded? They are not exactly barbarous, and must be closely associated with the official coinage. It is hard to believe that they belong either to L or c, mints which so steadily marked their city. There remains the theory that they were struck at the main cities of Britain, either by the direct permission or with the tacit connivance of the government. It is for the writer of the future to try out this hypothesis further. I feel little doubt that it is already nearly correct; the two BRI coins are of this class, exceptionally marked by an enterprising artist with the name of the place of origin.

The one remaining class of coins of Carausius interests us less. Though found occasionally in Britain, it was certainly struck on the Continent (8). Such coins occur more freely in finds there, they are more like coins of the Gallic Empire, and they have their own stock of coin-types, varying considerably from the British. There are a few marks—of mints (?)—R, OP, OPR. Webb thought that R stood for Rotomagus (Rouen), and indeed a hoard was found there. But Carausius's chief stronghold on the Continent was Gesoriacum (Boulogne), and it seems impossible to deny that city at least a share in the coinage.

⁶ Or, as Webb, 'Rationalis Summarum Rationum'. But Webb is certainly in error attributing the RSR coins to London, because the style is in some cases very similar.

Stukeley's 'Rutupii Signator Rogatorum', 'distributor of bounties at Rutupiae' condemns itself. Another suggestion, 'Rutupiae Stativa Romana', will not find many supporters. See Webb, p. 434. ⁷ *Num. Chron.* 1925, pp. 336 ff. Cf. Webb, p. 435. ⁸ Webb, pp. 516 ff.

Behind the monetary policy of Carausius there was certainly a brain, which I suspect to have been that of Allectus. The gold of Carausius is very rare—too rare for its standard to be fixed with certainty; it was probably 72, or even 70, to the pound (9). The standard of Allectus was probably the same, but recorded weights run a little higher. From about the beginning of his reign (A.D. 286-287) to 289 Carausius struck a piece of pure silver—apparently a denarius of a weight superior to that of Nero (10). Allectus did not strike the coin, but Diocletian and his colleagues borrowed the idea and struck a similar, but somewhat lighter, piece in A.D. 295. The common coin—the Antoninianus—is at first struck rather smaller than the contemporary Roman, and bears no mark of value. Soon after the peace with Rome, the module improves, the mark of value xxi is added (11) and the coins correspond in every particular to Continental issues of the Empire. After the breach of the peace in A.D. 292, the xxi disappears again; it is never used by Allectus. To complete the argument, it must be added that coins of the Gallic Empire and of Rome before Aurelian occur in great numbers in hoards buried under Carausius and Allectus, while coins of Rome after Aurelian's reform occur in much smaller numbers (12). The conclusion is certain. The Britain of Carausius in A.D. 287 was still refusing, as the West had steadily refused, to accept the reform of Aurelian; it still clung to its old coinage. As part of the price of peace with Rome, Carausius came into line and accepted the valuation of the radiate coin at two denarii ($\text{xx}-1$). He may have abandoned his pure silver issue for the same reason. Bronze coinage of Carausius can hardly be said to exist. A few rare specimens are recorded, but the most interesting of them (still to be published) has every look of being no ordinary coin but a strike in bronze from dies intended for a gold medal. The reign of Allectus has just one problem, which deserves a passing glance. Both at L and C mints he has coins, well below normal module, though more than halves, marked QL, QC, and bearing exclusively types of galleys—legends *VIRTUS AVG*, *LAETITIA AVG* (13). These coins present a pretty problem. If they were just halves of the ordinary coins we should expect a laureate instead of a radiate head, and, perhaps, a greater variety of types. Further, Q, if, as seems probable, it equals Quinarius, is not half an 'Antoninianus' worth two denarii ($\text{xx}-1$). The coins really look as if they are the last issue of the reign, when the great trial of strength by sea was at hand. In that case, Allectus might be adopting the policy that Diocletian himself employed of reducing the nominal value of his standard coin (14). But this is one of the questions which our students of tomorrow must settle; it is enough for us to have sketched its outline.

⁹ Gold at 70 to the pound was struck by Diocletian in his early period. The 72nd of the gold pound is the famous piece of Constantine I and his successors—the 'solidus'.

If the gold piece was struck at 72 to the pound and the silver at 84, 12 silver pieces would give a ratio of gold to silver 1 : $\frac{7}{2}$ or $10\frac{2}{3}$ ths. 15 would give a ratio of nearly 1 : 13, 20 a ratio of 1 to just over 17. We are not sure of the ratio and can therefore only guess at the relation of the pieces to one another.

¹⁰ The weight was apparently over 60 grains; individual specimens run as high as 78.

¹¹ For some reason not yet explained the mark is rare at the C mint. Coins struck by Carausius for Diocletian and Maximian are without it. (Webb, pp. 553 ff, 555 ff).

¹² Webb, pp. 448 ff. The great Blackmoor Hoard contained over 28,000 Gallic, etc., some 1200 odd Roman (post Aurelian), 545 of Carausius and 90 of Allectus. No doubt many other hoards of Gallic coins belong to the same period, but do not chance to contain any coins of the British Emperors. The Linchmere Hoard consisted mainly of Carausius with something like half the number of Roman (post Aurelian) and hardly any Gallic. ¹³ Webb, pp. 563 f, 569.

¹⁴ Diocletian reduced by half. If Allectus did the same, his own Antoninianus would be one, not two, denarii. That is perhaps a possibility worth considering.

Vergilian Cities of the Roman Campagna

by BERTHA TILLY

THE tract of country bordering on the area of the Anzio beach-head, part of the wider Roman Campagna, stretching from the confines of Ardea to the banks of the Tiber, is the scene of the dramatic action of the last six books of the *Aeneid*, the field of strife whereon is played to its finish the struggle for the foundation of the Roman race, and for the birth of Rome. On this soil still remain the Vergilian city of Ostia, which lies near the Tiber's mouth and was the port of Rome in antiquity, of Ardea and Lavinium, ancient settlements standing on the last seaward tufa ridge of the Alban *massif* and having their origin in the early Iron Age, and of Laurentum, the site of which was early lost in classical times, and cannot yet be located with any certainty.

It is to the Tiber's bank that Trojan Aeneas and his followers come on first setting foot on Italian soil. At early dawn in calm of wind and wave, coasting along the shore of Latium, they sight a grove at the water's edge through which a river flows to the sea in swirling eddies of yellow sand (1). As close to the Tiber as Castel Fusano a belt of the maritime forest indigenous to the west coast of Italy still grows in all its primeval luxuriance, and such might well be the natural setting for Vergil in which the Trojans first entered the river of the land assigned to them by sure prophecy. The scene of the Trojan landing is clearly the site of Ostia, a port of increasing significance in the Augustan age, which had too, in all probability, a place in the homage paid to Augustus in the scheme of the *Aeneid*.

The attempt however to locate Aeneas' landing place as visualized by Vergil must be based on a consideration of the topography of the river as it was known to the poet. At that time the mouth was in several respects greatly different from what appears today. Through long ages the Tiber has brought down in its course vast quantities of alluvial material which is deposited at the mouth. This process has gone on rapidly through all the ages, and in the last centuries has become even more rapid. Now the actual mouth is roughly three miles away from the nearest ruins of Ostia, and these, at the beginning of the third century A.D., lay on the edge of the shore. The material which is debouched into the sea cannot readily be carried away because the current along that part of the coast runs from south to north; on the south however, in the region of the Canale dello Stagno, the coast has only advanced six hundred feet since Roman times. The extension of the coastline, however, is not the only change which has taken place. Since the time of Trajan, the Tiber near its mouth has been divided into two streams, which flow one on each side of the Isola Sacra. The southern arm, now called Fiumara, is the natural stream, the one, that is, up which the Trojans sailed; the other is in origin an artificial canal cut in the ages of Claudius and Trajan when the Portus was built (2).

If one would see the place wherein the poet's thought the Trojans turned their prows upstream, he must go down to Ostia, and after passing through the ruins to their outermost limit, stand upon the modern bridge which spans the river. Just here is perhaps the point where sea and river met in Vergil's day. Now, to the westward, the water passes on its course for almost another three miles, fringed with low shrubs and herbage, traversing level fields. To the east lie the ruins of Ostia low on the river bank where the Trojans in their gliding ships found—instead of the busy docks of later ages—green sward for their resting place. A consideration of the walk round the site of Rome in the eighth book of the *Aeneid* (3) will convince the reader of the poet's power of thinking

¹Aen : VII, 157-9. ²Ashby, *Journal of Roman Studies*, 1912, p. 192 sq. ³Aen : VIII, 337 sq.

away existing monuments, and of imagining the primeval grass-covered slopes where the cattle grazed. So he thought of the Tiber fringed with the forest growth, of the peaceful flowing water, and the green banks, and perhaps in fantasy brought the Trojans home to a spot round which legend had in his own time gathered, to some place sacred from antiquity, where Aeneas might first have been thought to have paid homage to the gods of the new land.

An enquiry into the Republican and Augustan remains discovered at Ostia and of the early origins of the port, throws light on his intent. Excavation in the oldest quarter of Ostia has revealed the monuments of the Republican period, among them the warehouses inside the eastern gate, the Sullan wall, the portico and tufa columns on the *decumanus*, the temple opposite the theatre, the wet dock near the imperial palace, and certain tombs lying along the Via Ostiensis, showing that the main outlines of the plan of Ostia were early laid down to meet the necessities and characteristics of both a dockyard and emporium. Yet none of the monuments described seems fitting to inspire a poet's fancy, not around these could the legends of the Trojan landing linger, or increase.

Vergil's predilection is always for the ancient shrines where the peculiar cults and worship go back to time immemorial, and the soil of Ostia has revealed, in addition to the monuments mentioned, an *area sacra* contemporary with them, lying on the north side of the *decumanus* and west of the theatre, the sanctity of which appears always to have been observed, even in subsequent building operations. Along the rear wall of this *area* (4) standing on a common *podium* are the remains of four small temples; in the centre is a low *vasca*, and on the east a *nymphaeum*, and a walled enclosure sacred to Jupiter.

Traces of three separate restorations were found in which the original dimensions and orientation were carefully preserved. Underneath the *podium* were found on the virgin sand the primitive tufa walls of the first constructions. Overlaid on the remains of these first shrines were the *sacella* of the second period, standing on a common *podium* composed of blocks of yellow tufa, with a facing of *opus reticulatum* of the simple form *in antis* with walls ending in pilasters of tufa blocks, faced with stucco, each fronted by an altar of tufa blocks resting on the floor of the *area* before the steps of the *podium*. A remarkable fact is that, although the *area sacra* later became closely hedged about with buildings connected with the commercial life of Ostia, yet it appears always to have been respected, and its sanctity preserved. In Republican times two other sacred buildings were added within the precinct: the *nymphaeum*, probably superseding in function the primitive *vasca*, and a second construction, in each corner of which stands a *cippus* of travertine, inscribed I.O.M.S.

The contents of five *strata* of votive offerings, chiefly pottery and coins, found in close conjunction with the shrines, give testimony of unbroken continuity of worship from as early as the third century B.C. Thus the archaeological evidence is significant, pointing to the continuance of the cults observed in the *area sacra*, and to unbroken veneration for their sanctity. There remains the question as to whether it is possible to discover the deities to which the four *sacella* were sacred. In temple A a marble altar still stands *in situ* inscribed VENERI SACRUM. The other three in themselves give not the slenderest of clues, but it has been reasonably thought that a Gamalian inscription (5) may have reference to the four shrines, since in it is mentioned the building of four *aedes*, one of which was sacred to Venus. 'P. Luc. Gamala constituit sua pecunia aedes Veneris, Fortunae, Cereris, Spei' (6). The deities of the four shrines, for want of

⁴ For a detailed account of the *area sacra* see Paribeni Monumenti Antichi, 1916, p. 442 sq.

⁵ Carcopino, *Mélanges de l'École de Rome*, 1911, p. 193 sq.

⁶ C.I.L., xiv, 375.

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more convincing data, must naturally remain doubtful, but the occurrence of the name of Venus in one of the shrines and in the Gamalian inscription, perhaps calls for some degree of credence.

The nature of the building consecrated to Jupiter, lying to the southeast of the *area*, also must remain doubtful. The remains seem to indicate not so much a temple as a roofless *sacellum*. It is perhaps a place marked off as sacred, in all probability a place where a thunderbolt once fell. Certainly the asymmetric orientation seems to be the outcome of some such fortuitous event, since even the line of the *decumanus* was not taken into account.

Turning off from the main street of the city, and entering through the *enceinte* wall, Vergil may have seen in the *area sacra* the four *sacella* in the state of their second restoration, their walls and columns gleaming with white stucco, their roofs covered with antique revetments of terracotta, and the altars before the steps, and have marked too the spot sacred to Jupiter. An antiquary as well as a poet, he must have recognized them as the simple shrines revered by the earliest inhabitants of the port.

If popular legend in a traditionalizing age such as that of Augustus had grown around the memory of the visible memorials of the primitive settlement on the river bank, nothing is more natural than that the early sanctuaries, the antiquity of which may have been exaggerated by tradition, and continuity of worship should have had a part in the Aeneas legend. A study of the events connected with the landing, as the tale is told in the Aeneid, throws some light on this suggestion (7). After turning their ships upstream, Aeneas bids the crews turn the prows to land and the fleet is beached on the river bank (8). A feast is then spread on the sward beneath the trees, at the command of Jupiter, and platters of spelt are served for dishes. When the Trojans in hunger eat these rough cakes, the prophecy of 'eating their tables' is fulfilled (9) and Aeneas thus recognizes the promised land. Then he wreathes his brows with a branch of green leaves, and calls at this fateful moment upon the many deities who may attend this hour of destiny, and the momentous future. In answer the almighty Father of heaven thunders thrice in a clear sky, and shows them a cloud flashing with rays of golden light.

Hic Pater omnipotens ter caelo clarus ab alto
intonuit, radiisque ardentem lucis et auro
ipse manu quatiens ostendit ab aethere nubem (10).

As soon, then as Jupiter's approval has been manifested, they renew the feast and wreath the drinking cups. There seems no doubt but that in the poet's mind the Trojans' sacramental meal was connected with the *area sacra* of later times and that the shrine sacred to Jupiter was the place where fell his approving bolt.

Furthermore, if the shrines may be identified as sacred to the four divinities, Venus, Fortune, Ceres and Hope, then closer connexion may be reasonably found with the Aeneas legend. There is no doubt as to the shrine of Venus, and here we have to do with the divine mother of the great-hearted Aeneas, the founder of the Roman race. No deities were better able to attend him in the hazards of his destiny than Fortune and Hope. Perhaps the closest relation of all can be found between the shrine of Ceres and the 'eating of tables'. The whole event is momentous and solemn; the feast is heaped on platters of spelt at the command of Jupiter, and the archaic word 'adorea', and the sacrificial word 'liba', add to the solemnity:—

adorea liba per herbam
subiciunt epulis—sic Jupiter ille monebat (11).

⁷Aen: VII, 24-5. ⁸Aen: VII, 117sq. ⁹Aen: III, 255. ¹⁰Aen: VII, 141-3. ¹¹Aen: VII, 109-10.

The platters are spoken of as ' *cereale solum* ' (12), and at the moment when the prophecy is enacted, they are again described as ' *exigua Ceres* ' (13). The repetition of the name Ceres seems too insistent to be mere nomenclature and it is perhaps not impossible that in the *area sacra*, and before those humble and early shrines, so long revered, preserved in the reforms of Sulla, and not overlooked in the increasing trade of Augustan times, some such ceremony was accustomed to be observed, and that at the religious feast at which sacramental cakes of an antique pattern were eaten (14), the tale of the Trojan landing was told.

The *castrum* revealed by excavation, lying almost in the centre of the city as it is now known, and representing the original nucleus of the settlement, also has close reference to the Trojan legend. After the sacrificial events which immediately follow the landing, Aeneas proceeds to build a settlement, half-city, half-camp, for the safety of all ; the line of the walls is marked with a shallow ditch, and a rampart and battlements are added :—

ipse humili designat moenia fossa
moliturque locum, primasque in litore sedes
castrorum in morem pinnis atque aggere cingit (15).

In several passages in the Aeneid the city-camp is clearly called by its name Troia (16) ; it is indeed the new Troy (*Troia Nova*) raised on Italian soil, a reincarnation of the fatal Troy which they left in flames in Phrygia.

The form of the Ostian *castrum* (17) is characteristically rectangular, having four gates of the long corridor type, and is crossed by the *decumanus* which runs directly through the two main gates from east to west. The walls, of Fidenae tufa, although at the present time incorporated in later buildings, are easily distinguished by the colour, a deep murky red, and by the presence of large black *scoriae*. It has been thought that the use of this remarkable stone might afford grounds for the dating of the *castrum*, and Säfllund's (18) recent work on the Republican walls of Rome has shown that Fidenae tufa was used there probably as late as 217 B.C. He concludes that the Ostian *castrum* cannot safely be dated as much earlier than the second Punic war (19). In his opinion the building of the *castrum* in Fidenae tufa may therefore take its place in the general defence works carried out against Hannibal in the second Punic war, but the actual date must still remain uncertain. Calza (20) has pointed out that the streets of the Imperial City preserve the lines of the *fossae* and show traces of the *pomoerium* spaces and thus the important fact emerges that in the *castrum* is to be seen the original nucleus of the city. It appears then that out of this humble beginning grew the thriving emporium, and that in later building activities it was not entirely forgotten. As far as present research has

¹² Aen : VII, 111. Spelt was the ancient food of the Romans and was constantly used in ritual.
¹³ Aen : VII, 113.

¹⁴ See Carcopino, *Vergile et les Origines d'Ostie*, 1919, p. 673 ; Boas, Allard Pierson Stichting Archaeologisch Historische Bydragen VI, 1938, p. 234.
¹⁵ Aen : VII, 157-9.

¹⁶ Aen : VII, 233 ; IX, 641-4 ; X, 26, 74, 213, 247. The epithet *nascens* leaves no possible doubt that the reference is to Aeneas' settlement and not to Phrygian Troy.

¹⁷ This account is taken from Tenney Frank, *American Journal of Philology*, 1924, 45, p. 64 sq.; also from Calza, *Guida di Ostia*, p. 26.

¹⁸ Säfllund, *Le Mura di Roma Repubblicana*, 1932, p. 238 sq.

¹⁹ He considers that the Fidenae tufa to be seen on the Palatine represents restoration work following the defeat at Trasimene.

²⁰ Calza, *Notizie degli Scavi*, 1923 ; cf. T. Frank, loc. cit. p. 65.

gone, it is impossible to make any safe conclusions regarding the appearance of the *castrum* in the Augustan age, and some uncertainty must yet remain as to whether Vergil could have seen enough to suspect here the presence of an older settlement in the typical form of a military camp, with towered gateways and strong walls (21). Yet there are sufficient grounds to suppose that the gates at least continued to be visible, for they were repaired with harder stone in the 2nd century B.C. (22). Their presence in the midst of the city and in the heart of the busiest quarter, must have been remarkable. In this way perhaps a memory of the old settlement may have lingered. Within the bounds of possibility may be the suggestion that this part of the city had a name, perhaps *Castrum*, *Castra Troiana*, or even *Troia*. If any hint of the antiquity of this spot survived, either in visible appearance, or in nomenclature, then tradition would in all likelihood gather round it, especially at a time when the Aeneas-cycle was becoming popularized.

From the Tiber's bank we turn southward to the more ancient settlements at Ardea and Lavinium. Ardea, the storied home of Turnus, stands still bearing its ancient name, about twenty miles from Rome and about three from the sea, in a setting little different from what was to be seen in the Augustan age. During the recent fighting, it lay on the outer edge of the Anzio beach-head and the ravines which skirt the site played a part in the tide of attack and defence. If the city be approached from Carroceto, the surrounding pastureland, with here and there a sunken valley clothed with the fresh growth of spring, and in the distance the deep blue of the sea, brings to experience all that the poet himself may have known, and is a fit prelude to the first view of the rocky acropolis which dominates the fragrant fields. In the other direction, the modern road from Rome, which follows in part the line of the ancient *Ardeatina*, approaches the western side, leading through the half-ruined medieval gateway. Poor ramshackle houses and hovels, roads worn deep into the rock, all speak of the desolation of this most poetic place, honoured in myth, legend and history, now peopled by only some two hundred poor peasants, a mere wraith of what it once was. Crossing the plateau on which the city stands, the traveller will come to the eastern gateway, will see the ruined medieval tower and crumbling walls built out of Roman stonework, and will look over vineyards and allotments to the ancient earthwork guarding the eastward entrance defences, and beyond in the distance to the Alban hills closing in the wide Campagna.

The *rocca* of Ardea is one of several plateaux of tufa at a small distance from the coast, and the site, characteristic of primitive settlements on the Latian seaboard is comparable with that of Lavinium, Satricum (now Conca) and in Etruscan territory of Caere (Cervetrae) and Tarquinia (Corneto). They all stand some few miles inland, well raised above the coast line, which in ancient times was swampy and unhealthy (23), and are skirted by rivers which cut deep into the friable volcanic rock of the Campagna, making deep ravines.

The history of Ardea, such as can be gleaned from ancient writers, tells of a city of great antiquity, once amongst the most flourishing in Latium, enjoying early independence and a modicum of wealth, but eventually coming to decline and at last falling into a ruinous condition which would have caused even her name to have been forgotten, had it not been for the continued sanctity of her ancient cults. The tradition of early sea power is borne out by Polybius, who relates how Ardea was included in the first treaty between Rome and Carthage (24). The port of Ardea, known as the *Castrum Inui* in Roman times has been identified with some ruins existing near the mouth of

²¹ T. Frank, loc. cit. p. 65; Wilson, *Papers of the British School at Rome*, XIII, p. 43.

²² T. Frank, loc. cit. p. 65. ²³ Strabo, v, 231, 232. ²⁴ Polybius, III, 22.

the Fosso dell' Incastro, one of the Ardeatine rivers (25). In the sixth century which marks her *floruit*, Ardea takes her full share in the Latin leagues formed in opposition to Rome, but in the following century she falls a victim to the advancing power of Rome, is made the first Roman colony, and becomes a barrier against the Volsci (26). The tide of battle and unrest passed over Ardea in the fourth century during the Gallic and, later, the Latin wars, and it appears as if her decline had well set in, for after this age she ceases to have any appreciable place in historical records.

This tradition is corroborated by archaeological discovery. Iron Age finds from the Acropolis (27) leave no doubt but that Ardea takes her place among the southern centres of the Latian Villanovan culture, and that the settlement is contemporary with those on the site of Rome and in the Alban hills, where similar finds have come to light (28). Thus the earliest habitation of the rock-bound acropolis is to be dated to about 750 B.C. The Rutuli are furthermore thus proved to have been of a Latin stock analogous with the earliest dwellers in Latium (29). Chamber-tombs of the fourth and third centuries (30), found along the old road leading towards Lanuvium, indicate the general poverty of these centuries.

Of all the ancient defence works of Ardea, the most remarkable is the high *agger* fronted by a wide *fossa* bounding the eastern side of the site, in the quarter called Civita-vecchia. The fortification is pierced by the road which runs from Ardea to Civita Lavinia (Lanuvium) and the hills. This remarkable earthwork is comparable with the Volscian defences of Antium (31) and Säfund considers it to be probably equal in date with the so-called Servian *agger*, though he would point out that an earth mound is characteristic in all western Europe from as early as neolithic times (32). He considers that it was the fortification of Ardea until the fourth century, and suggests that it may go back to the Iron Age.

Such was the inherited tradition of Ardea in the Augustan age; she was known to Vergil and his circle as a city of reputed antiquity, with a once glorious past, but whose fortune had long since vanished. To the poet's thought she was a pattern of fame that perishes, and his own words speak of her plight:—

locus Ardea quondam
dictus avis et nunc magnum manet Ardea nomen
sed fortuna fuit (33).

Strabo gives a most valuable record of the ruinous state into which she had fallen in that age, when he speaks of her together with Lavinium as only traces of cities: and his words are in full accord with Vergil's designation of the city as *locus* (34). He records how the desolation of Ardea in the Augustan age was not altogether due to the fortunes of war; that part of the Campagna was deserted owing to its unhealthiness, and to writers of the time and later she is a byword for the sickness of her land.

The question arises as to why in an age so glorious, any interest should attach to this ruined and remote city, and why she should be given prominence in the Aeneid,

²⁵ Nibby, *Analisi della carta dei dintorni di Roma* 18482, I, p. 440.

²⁶ H. Last, *Cambridge Ancient History*, VII, pp. 487, 503.

²⁷ Boëthius, *Bolletino dell' Associazione degli Studi Mediterranei*, June-July 1931, p. 2; Pigorini, *Bolletino Paletaologico Italiano*, 1882, VIII, p. 114; Pasqui, *Notizie degli Scavi*, 1900, p. 54.

²⁸ Boëthius, loc. cit. R. MacIver, *Villanovans and Early Etruscans*, 1924, p. 70 sq.; Åberg, *Bronzezeitliche und Früheisenzeitliche Chronologie*, 1930, p. 216.

²⁹ Boëthius, loc. cit. p. 3.

³⁰ Pasqui, loc. cit. p. 56 sq.

³¹ Boëthius, loc. cit. p. 14.

³² Säfund, loc. cit. pp. 124, 131.

³³ Aen : VII, 411-13.

³⁴ Strabo, V, 232.

the crowning literary achievement of the age. We owe to Strabo the knowledge of a temple sacred to Venus near the city, where the Latins had federal cults; the legend of Aeneas, he states, brought it fame, and the ceremonies observed there were said to have originated in his time (35). Thus we have documentary evidence from the Augustan age of the continuance of the local sanctuaries and of unbroken worship and of how the Aeneas-cycle of legend had been preserved. Perhaps at the federal gatherings the older tales were told and retold, freshly informed from age to age, of the Trojan invasion, and of the fall of the passionate prince of Ardea. The existence of a cult and temple of Juno is clearly attested both by Vergil and by Pliny (36), who writes as though he had actually seen the temple, and thus we may conclude that it could have been known to Vergil. Servius, in addition, speaks of a temple sacred to Castor and Pollux, which he finds evidence to show was probably familiar to the poet (37). Thus we have records of temples on Ardeatine soil sacred to Venus, Juno, and Castor and Pollux, and what is more important, of the existence of federal cults.

The sites of two temples have been ascertained by excavation, but the deities to which they were sacred cannot be discovered, and in addition recently a basilica, dating from the 1st century B.C., which is thought to have some connexion with the Latin federal cults. The remains of one temple were found on the acropolis under some modern houses (38). The architectural characteristics and the fragments of terracotta revetments (39) go to prove that the temple dates from the 6th century B.C. and that it was rebuilt or repaired at least three times between then and the 1st century B.C., thus attesting its existence in the age of Vergil himself. The position of this acropolis temple points to a cult of no small local importance, and suggests that it is in origin the seat of the primitive worship of the first settlers on the *rocca*. The second temple, excavated in the lower part of the ancient city, revealed little more than the *podium* of a shrine of small size. The vast quantities of decorative terracottas, however, associated with it, range in date from the 6th to the 1st centuries B.C. indicating, as in the case of the first temple, unbroken continuity of worship.

Excavations carried out in 1933 and 1934 by the Director and students of the Swedish School at Rome on the west of this latter temple yielded results of major importance. The remains of a rectangular building were unearthed which were reconstructed as a basilica of the first century B.C. The full import of this date must not be overlooked, for it gives yet another proof of the historical tradition of the city's life; that she lived on, after her economic decline, in the continued reverence for her ancient sanctuaries. The very fact of building activity in this century shows the full vitality of her religious life long after the city's decline.

Perhaps it is permitted to recognize in this basilica of so early a type, so closely connected with the adjacent temple, the meeting place of the Latins and the scene of their federal feasts. Its shelter would be welcome to pilgrims coming from a distance, since the buildings of the once prosperous city were reduced to ruins. Was it here on the feast days that the stories of Aeneas were told and retold and handed on from generation to

³⁵ Strabo v, 232.

³⁶ Aen : VII, 416-19. Pliny N.H. xxxv, 115, see on this passage Boëthius loc. cit. p. 4

³⁷ Servius, ad Aen : I, 44, describing a picture to be seen in the temple which recalled the passage in the Aeneid where Pallas sets the Greek fleet on fire.

³⁸ Boëthius, loc. cit. Aug : 1930, pl. II ; June-July 1931, p. 5.

³⁹ Andrén, *Bolletino dell'Associazione Internazionale degli Studi Mediterranei*, June-July 1931, p. 17 sq. and drawings.

generation? Imagination is tempted to see here the *aphrodisium* of Strabo and of the *periplos* of Pliny, but of this question no convincing answer can be given.

It can hardly be doubted but that Vergil at some time visited Ardea. Access from Rome, along the Via Ardeatina, would be easy although the Campagna at that time was practically deserted, for the road must have been kept in repair for the sake of the Roman magistrates whose duty it was to attend the local festivals. Cicero (40) speaks of making a circuit of the temples in the Ardeatine territory, perhaps in an official capacity, and it is even reasonable to recognize here a reference to the Latin cults mentioned by Strabo. Doubtless *curiosi* and men of letters knew well her ancient shrines which still existed on her soil in their day, and perhaps went down from Rome to see them, drawn as much by antiquarian as by patriotic or religious feeling.

Pratica di Mare, the modern habitation situated on the acropolis of ancient Lavinium (41) founded by Aeneas and called after his Italian bride, lies at a distance of about sixteen miles from Rome, and about three miles from the shore. The site can be reached by two roads from Rome, the Via Laurentina, and the Via di Decima, which partly corresponds with the ancient *Laurentina*. This branches off the modern Ostiensis, and passes by Malpasso, Decima, where a Roman milestone *in situ* marks the eleventh mile from Rome, and by Capocotta. The road passes for a distance of a few miles along the edge of the Laurentian forest. The modern village extends in the form of a square over part of the area of what was once the ancient acropolis. The whole is overshadowed by the Palazzo, a country seat of the Borghese family dating to the sixteenth century. The village is in a poor condition, though not as poverty-stricken as Ardea.

The acropolis is about a mile in circuit, and stands about eighty metres above the lower-lying land. The sides are precipitous in every part, not rocky like those of Ardea, but grass grown. If a circuit be made at the foot of the acropolis, starting from the eastern side, in a northward direction, it will be seen that a deep and wide trench isolates it on this side. This may have been worked artificially, for there is no appearance of its having been a water-course at any time. The trench runs into the steep-sided valley of the Fosso di Pratica which half encircles the citadel on the north. There is every reason to suppose that the present entrance to the acropolis is on the site of the ancient one, for it is of a strategic nature, having a steep ramp, by means of a bend turning to the left to cause a man to expose his right side on approaching the city. Several roads lead out from Lavinium, marking the site as well centred, and suggesting her ancient designation as the metropolis of the Latins (42). The oldest line of communication was east and west, to the hills and the sea. Another road leads to Ardea, a pleasant way over the fields with a wide vista of the sea and the medieval towers on the shore on the one hand, and on the other, the Alban hills.

The ancient historians are rich in picturesque legends connected with Lavinium, derived from sources which were accessible for Vergil. Dionysius of Halicarnassus (43) states that all historians agreed over the tradition that the city was founded by a band of Trojans led by Aeneas escaped from the sack of Troy, and here ending their long wanderings. He tells of a straw hut kept sacred at Lavinium (44) which, the inhabitants believed,

⁴⁰ Cicero, D.N.D., III, 47.

⁴¹ The site has been identified beyond doubt from several inscriptions of the Imperial age, bearing the name *Laurentes Lavinates*; see especially C.I.L., XIV, 2069 (Dessau, *ibid.* p. 186) and 2070 sq.

⁴² Dionysius of Halicarnassus, V, 12.

⁴³ IV, sq. Varro, R.R., II, 11.

⁴⁴ Vergil however locates the prodigy on the banks of the Tiber, Aen : VIII, 815.

marked the spot where Aeneas sacrificed the white sow of prophecy and her thirty young, and which no stranger was allowed to enter because of its sanctity. He further suggests that the *capanna* was thought to have been the place where Aeneas built his temple to the *Penates* whose worship he established at Lavinium. This hut sanctuary of the primitive pattern was probably similar to the hut of Romulus preserved on the Palatine, and to that on the Capitol (45).

We learn from Varro that bronze images of the sow and her thirty young were kept in a public place, in all probability the forum, and what was said to be the mother's body was preserved in salt and shown by the priests. He speaks of the tradition as being very ancient, and as if he himself saw the bronze statues. Dionysius of Halicarnassus (46) records a picturesque legend attaching to other bronzes kept in the forum representing a wolf, a vixen and an eagle. He writes as if he himself saw these statues and remarks that they had been preserved there for a long time. These figures may indicate a local craft of early times, just as the sacred hut recalls the primitive settlement. He also tells (47) how two years after the founding of the city by Aeneas, she became the metropolis of the Latin race, and so all Romans came to regard her. When thirty years later the seat of government was transferred to Alba Longa (48), the *Penates* were left behind and so Lavinium became in addition the religious metropolis of the Latins, and continued under the Romans.

Though the records concerning the city in semi-historical and historical times are scanty, the important fact emerges that it was the duty of the King of Rome to make sacrifice to the *Penates* at Lavinium (49). The Latin character of the inhabitants is clearly attested by the leading part they play in the Latin leagues of the sixth and fifth centuries (50). During the Gallic wars of the fourth century, Lavinium seems to have stood firm for Rome together with Ardea and all the southern towns. From the latter half of the fourth century, history is silent about Lavinium and she goes down in oblivion as a city until she re-emerges in changed form in the time of Hadrian, and under the empire we know her henceforth as Laurolavinium.

Though no systematic excavation has yet been conducted at Pratica di Mare, certain sporadic and chance discoveries have been made which give evidence of the habitation of this ancient site from earliest times down to the last Imperial ages. The various antiquities which have been unearthed at different times are all housed in the Palazzo Borghese on the site of the ancient city. These antiquities have been classified by Lanciani (51) into three periods, 'archaic', 'middle' and 'Imperial'. The finds belonging to the first period are characteristic of the south Villanovan culture already established for Ardea. The first inhabitants of Lavinium are thus seen to have belonged to that Latin stock which early reached Rome and the Alban hills, and the site to be one of the primitive cities of the first-comers to Latium. The finds of Lanciani's 'middle' period cover the last three centuries B.C. Terracotta revetments together with votive offerings go down to the first century B.C. and indicate probably a temple site, though no identification however has so far been possible.

For the Augustan age we have no records of history, but Strabo has evidence, as in the case of Ardea, for her condition (52). From the close of the third century Lavinium

⁴⁵ Platner and Ashby, *Topographical Dictionary of Rome*, 1929, *Casa Romuli*. ⁴⁶ LIX.

⁴⁷ LVII, cf. Servius, ad Aen : xi, 316. ⁴⁸ LXIII.

⁴⁹ Dionysius of Halicarnassus, II, 52, 3; 53, 1. Titus Tatius is said to have been murdered in the act of sacrificing to the *Penates* at Lavinium.

⁵⁰ Dionysius of Halicarnassus, III, 34, 3; Festus, p. 276.

⁵¹ Lanciani, *Monumenti Antichi*, 1903, pp. 164 sq. ⁵² Strabo v, 232.

sinks into insignificance and political oblivion yet, as in the case of Ardea, her sacred places and cults lived on, taking on fresh life through the legendary connexion with Aeneas when the Trojan cycle became popularized. She was the home of the *Penates* in Italy; on her citadel, the tradition went, were they first settled, and given an abiding home by Aeneas who had brought them safely from Troy. To political circles of the time the worship of the *Penates* at Lavinium was a familiar duty which the magistrates of Rome were bound by religious ties fully to observe.

From Servius (53) and Macrobius (54) we learn that not only the consuls but even the dictator and the praetors and generals about to depart to their provinces (55), sacrificed at Lavinium both on taking up and relinquishing office. In the time of Cicero (56) Scaurus was proscribed because he had not taken care to see that the rites at Lavinium were properly carried out. *Vesta* was also worshipped along with the *Penates* at Lavinium (57) by the high Roman officials, a fact indicating the Latin origin of her cult, which came to be regarded as the mother-cult (58) of that in the Roman forum.

The journey from Rome to Lavinium was an accepted and familiar undertaking in the Augustan age. For this purpose alone the road, like the Via Ardeatina, would be kept in some degree of repair, even though the cities were ruinous and the Campagna a wilderness. That Vergil should not at some time have visited the legendary home of the *Penates* and *Vesta*, the establishment of whose cults on Italian soil play so large a part in Aeneas' divine mission, seems incredible. Could he have gone down to Lavinium in the train of some consul-elect to witness those ancient rites, a few fragments of the scene lie before the imagination. The approach is by the Via Laurentina. For the last mile or two the citadel of Lavinium rises above the scene, more majestic on this, the northern side, than on any other. The road ascends the ramp, and turns sharply to the left to enter the area of the acropolis. Here in all probability was the actual home of the *Penates* and their cult, though of the rites and practices observed in their honour, we have little knowledge. Here is to be seen the primitive *capanna*, their original sanctuary. In the Forum, which is perhaps to the southwest, are the animal bronzes round which so much legend was fabricated, and which must have attracted the attention of many an antiquary of the time. The rest of the city, once populous, is deserted now and fallen into ruin. Here in this ancient place Vergil, whose pride was in the sacred traditions of his people, could not fail to recognize one of the oldest memorials of the Latin race. The whole picture, so faintly outlined, so wanting in points of light, is one of desolation, in keeping with the words of a later poet (59):—

pulvere vix tectae poterunt monstrare ruinae
Albanosque lares Laurentinosque penates,
rus vacuum, quod non habitat nisi nocte coacta
invitus questusque Numam iussisse senator.

⁵³ Servius, ad Aen : II, 296.

⁵⁴ Macr. : III, 4, II.

⁵⁵ Daniel, Servius, ad Aen : III, 12.

⁵⁶ Ascanius, in Scavianum, 21

⁵⁷ Servius, ad Aen : VII, 150; Macr. Sat. III, 4, II.

⁵⁸ C.I.L. x, 797; and Altheim, *A History of Roman Religion*, translated Mattingly, 1938, pp. 140-1. For Vergil's treatment of the *Penates*, see Cyril Bailey, *Religion in Virgil*, 1935, p. 32 sq.

⁵⁹ Lucan Phars. VII, 393-6.

Ancient River Beds and Dead Cities

by DOROTHY MACKAY

CLOSE acquaintance with the geographical situation of the ancient sites of Iraq, and also of the Indus Valley, inevitably leaves two questions to haunt the mind. Why did early man choose such inconvenient and inaccessible places, as many of them now are, for his settlements when he gave up nomad life? And why after a site had been deliberately chosen for a city was it so frequently abandoned, though its occupation might already have extended through several centuries?

These questions were first brought home to the writer in vivid fashion by a visit twenty years ago to the lonely and insignificant little mounds of Jemdet Nasr, some twenty-five miles from the ruins of Babylon and about halfway across the wide uninhabited desert between the lower Euphrates and Tigris rivers. To reach them in a delapidated Ford car, a left-over from the last war, with broken bonnet, one door missing, and the hood tied down with string, across fifteen miles of trackless desert hitherto untraversed to our knowledge by Europeans, was an experience in itself. From Kish our little party of five, including the Iraqi driver and one of the Arab diggers as guide, passed for a mile or more between an ancient canal, dry since the days of the Caliphs, and a field of barley fed by a runnel of water from a new canal made the previous year. It was the first time that a crop had been grown on that particular area for a very long time past—probably for many centuries—and the shortness of the straw bore witness to the salting of the soil that follows on long periods of drought and disuse. Beyond the limit of the 'cultivation', we seemed to plunge all at once into a strange new world, where all was mirage and unreality. Around us an immense flat waste of fine greyish-yellow alluvial soil was bounded by an unbroken horizon, shimmering like a vast circle of quicksilver, above which, here and there, long, low islets seemed to float in the sky. No vegetation was to be seen except occasional low thorny scrub, against which the driving desert winds had piled dune-like heaps of fine grey sand.

Low mounds and ancient canal banks, at first glance all exactly alike, were all that broke the monotony. And soon we realized that those islets also were merely the tops of mounds some three to five miles distant, whose bases were, quite simply, rendered invisible by the shimmering heat which rose from the soil. Even after one of these apparent islands drew right in from the horizon, its base appeared to be washed by a pool of water, aptly named by the Arabs 'the Devil's lake'. At nearer approach the latter suddenly disappeared, as at the blink of an eye, and it was strange to mark how the apparent height and importance of aspect of the mound as suddenly diminished. We tarried to examine the surfaces of those mounds near which we passed, for every fragment of pottery, brick or flint lying on the surface of the desert in Iraq tells its tale; in the wide and utterly flat plain of the two rivers there is no *tal* that does not represent some ancient city, town or village, once teeming with activity. On some of them glazed potsherds of brilliant blues and greens had with undiminished lustre withstood the dazzling sun and burning heat through all the centuries since Parthian and Persian days. Beside these latter mounds could still be traced the tops of the 'silt' banks beside canals long since dried up and derelict, and now flat with the surrounding desert. That district which is now so desolate must once have been thickly populated. It may well be so

again, and the aspect of the country would then be very similar to that of the Nile Delta at the present day.

To the distant view the mounds of Jemdet Nasr (PLATE I) differed in no wise from other mounds around, save for being rather lower and less extensive. On close examination, however, the surface finds were quite other than we had seen as yet; nor was there any trace of a canal in their immediate neighbourhood. Unfortunately, the subsequent excavation at the site by Professor Langdon was of short duration and that of M. Watelin shorter still; no time could be devoted to the study of the water-supply. But the discovery by the former of a well lined with Neo-Babylonian bricks beside a small building of the same date on the summit of the westernmost mound (E. Mackay, 'Report on Excavations at Jemdet Nasr, Iraq', *Anthropology Memoirs, Field Museum, Chicago*, vol. 1, no. 3, p. 226) suggests that already by that date the water-supply of some two and a half millennia earlier was no longer available.

That man's original settlements when he gave up nomadic life were of set purpose built on the banks of streams or rivers can hardly be doubted; he not only needed water to slake his thirst, he needed it in quantity for the watering of his fields. Even were the annual rainfall greater than it is today (1)—and it is now generally conceded that in Western Asia there have been fluctuations of climate within historic times—and especially where the distribution of the rainfall is seasonal, he would have built beside a river. It is easier to irrigate large areas of fields and gardens from a running stream than it is from springs and wells; and in unfavourable seasons the latter may run dry.

At first, water was probably taken from the river—and it is even to this day—by lifting it by some mechanical device to runnels on top of the river bank. Throughout the ages the *shadūf* has been in use—that primitive but most efficient contrivance, whereby with a rhythmical swing of a weighted pole worked by one man alone enough water can be raised and poured into little channels to irrigate some four acres of land. The *shadūf* is depicted on the tomb walls of ancient Egypt; it is still seen in great numbers on the banks of the Nile. But in the early twenties of this century the banks of the Euphrates below Baghdad already resounded with the 'chuffing' of little pumping engines, driven by the oil so plentiful in that land; though here and there a patient ox was to be seen walking up and down an inclined plane to lower and raise a vessel to bring up water—another primitive, and singularly awkward, method of lifting water to the level required.

In their lower courses, great rivers such as the Indus and the Tigris and Euphrates, owing to the vast amount of silt deposited, tend to flow along ground that is higher than the rest of the riverine plains that they traverse, and canals can be cut through their banks to carry the water where it is wanted. Account has to be taken of the seasonal height of the river, and canals are of two types. For the more scientific cultivation of the land, *perennial irrigation canals* are cut at such a level that water is obtainable from them at whatever height the river may stand, which entails the construction of barrages and regulators, by means of which the amount of water passing into the canals is controlled. In the case of *inundation canals*, flood water is poured onto the land from channels cut at a level to take flood water only, and crops are grown at the season when that is available. These latter canals being uncontrolled constitute a real menace. If the flood is higher than usual, perhaps owing to an especially heavy winter in the mountainous regions whence the river is fed by melting snow, and the flow of water into an inundation canal is steeper, the river may side-step into the canal, changing its

¹ Ellsworth Huntington, *Civilization and Climate*, pp. 227 ff.

course and leaving the old bed dry. This is an important point, though such a catastrophe may well take place without man's agency. In Iraq after the last war, the conversation of officials of the Public Works Department frequently swung round to expressions of anxiety about the numbers of inundation canals cut by the Arab tribesmen. And at the time of the building of the Sukkur Barrage in Sind, there was some lively discussion about the possibility of the Indus taking a side-step above the rocky channel between Sukkur and Rohri, leaving the great new barrage high and dry.

During our sojourn in Iraq, we had occasion to note some of the small irrigation canals run off from the Euphrates on either side, giving water to the cultivators of the fertile land according to a rota devised by long custom. Infringements of agreements about the quantities of water drawn from channels owned in common that are at the bottom of many a feud—and even murder, in that country of violent passions—between a man and his neighbour. In Sumerian times trouble arose from this cause between neighbouring city-states. Situated, as will be seen in FIG. 1, higher up a branch of, or canal from, the Euphrates that brought water to Lagash (Tal Loh), the little city-state of Umma (Jokha) appears constantly to have interfered with the water-supply of the larger city. After a series of punitive raids, all unavailing from the disciplinary point of view, in the twenty-ninth century B.C. Eannatum of Lagash administered heavy punishment to the recalcitrant little state, and set up the boundary stone now famous as the Stele of the Vultures between the two states. He also took the precaution of making another canal. Yet his nephew, Entemena, was still plagued to such an extent by his inconvenient neighbour that he decided to draw water from the Tigris in future instead of on sufferance from the Euphrates: it is probably to the foresight of Entemena that Iraq owes the Shatt el-Hai. But it is noteworthy that this artificial stream has at some time shifted its bed, so that Lagash now lies out in arid desert; and though navigable in time of flood the Hai channel is apt to be dry in the late summer.

Personal needs and those of his fields do not exhaust man's reasons for building his cities on the banks of rivers. From very early times boats are known. They are engraved on cylinder seals of the Uruk period, dating from near the beginning of the fourth millennium B.C. (2); one of these is a fairly capacious boat with a cabin and two men paddling. In pl. XI, m (op. cit.), we see a boat in tow. The silver model of a boat from the King's Grave (pg 789) at Ur (3) dates from the Third Early Dynastic period, about the middle of the third millennium B.C. These are all boats of simple lines, such as may well have been used for little else than fishing. But they suffice to show that boats were built, and the Story of the Ark indicates the existence of more commodious and spacious craft that might well have been used for trading up and down the Euphrates, and even along the coasts of the Persian Gulf and India. To this day quite small Arab dhows make the journey across the Indian Ocean to the east coast of Africa at suitable seasons of the year:

From the great Indus Valley city of Mohenjo-daro we have evidence in two outline pictures (4) (PLATE II, A and B), one on a seal and another scratched on a potsherd, that boats were used—boats remarkably similar in build to boats on the Indus today with upturned prow and stern, and a matting-covered central cabin. These also were probably fishing boats; but it must be borne in mind that both at Ur and Mohenjo-daro only minute traces of wood have survived, and any boats left on the river banks at

² Frankfort, *Cylinder Seals*, pl. III, d and e.

³ Woolley, *Ur Excavations, II: The Royal Cemetery*, p. 71, pl. 169a.

⁴ Mackay, *Further Excavations at Mohenjo-daro*, 1927-31, pl. LXXIX, A, and LXIX, 4.

the abandonment of those cities must inevitably have perished; the scour of flood water at later dates would probably have destroyed any surviving impressions of their shapes and structure. And whereas only the two pictures of boats mentioned have so far been unearthed at Mohenjo-daro, the area of that city that has been excavated is very small in proportion to its great extent. Nor have the buildings immediately alongside the old river bed, that we have a right to assume once washed its western side, been adequately examined. For the history of early India it is vital that one day they should be, to which subject we shall return later.

Examination of a map of the ancient sites of Iraq shows strikingly that those which are in occupation to this day are still situated on the banks of the great rivers or their tributaries. The few exceptions, such as Erbil, the Arbela of the Achaemenid period, where Alexander finally defeated Darius, are supplied with water from wells or by *karezes*, those artificial underground channels beneath a line of well-shafts that on surface view curiously suggest the effects of a long 'stick' of bombs! Those ancient sites which are now completely deserted—and they constitute a considerably larger number—are often far from the nearest river. Yet examination of the environs of these sites suggests that they were once on a river bank. Or the remains of the banks of canals, which may actually have succeeded departed rivers, are still visible, as in the region of Kish. Of old river beds, the fine sand, different in its composition and texture from the alluvial soil on either hand, and the lack of potsherds and other débris of man's habitations, are striking characteristics. But here a word of caution is necessary: old river beds discernible on the surface at the present day may not be older than some few centuries, if as much, and the river beds contemporary with ancient cities probably lie well below. It should also be borne in mind that a river may swing to and fro; it may not always side-step to the west, though that seems to be more usual—indeed, both Ur and Zubair (old Basrah), the early Islamic city founded by the Caliph Omar, were left abandoned and their irrigation canals disorganized by the lower Euphrates moving eastwards. An old river bed may also conceivably be reoccupied later at a higher level.

The whole subject, though especially fraught with interest by reason of the immensely important cultural contacts that may well have been brought about, in part at least, by river trade, is equally fraught with difficulties. The study of climatic conditions and the geological structure of the countries concerned calls for knowledge and experience that the hard-pressed field archaeologist with his multifarious tasks has little time to acquire. The skilled collaboration of meteorologist, geologist and geographer (particularly the student of the early Arab geographers and travellers, from Ibn Serapion onwards) is called for; and air photography, to which archaeology is already so heavily indebted, should also play its part. But even so, there is a certain amount of definite knowledge already available, and the Public Works Department of the Iraq Government in 1929 included in an excellent set of maps (5) a plan of suggested old beds of the lower Euphrates and Tigris linking up the ancient sites now standing desolate and alone in arid desert. It will be noticed in the map (FIG. 1), in which these possible ancient courses of the rivers have been incorporated, that Jemdet Nasr lies on what is now thought to be a probable very early course of the Euphrates. It would be difficult to suggest how otherwise this little city—it could hardly have been the chief city of the civilization now associated with its name, which spread its authority and products as far afield as Egypt, Syria, Troy, the Cyclades and Persia (6)—obtained sufficient water.

⁵ *Maps of Iraq with Notes for Visitors*, 1929.

⁶ Frankfort, *Cylinder Seals*, pp. 224, 227 and 293.



FIG. 1. MAP TO SHOW SUGGESTED COURSES OF THE EUPHRATES AND TIGRIS RIVERS IN EARLY TIMES

CITIES BEFORE 323 B.C.	HISH
CITIES AFTER 323 B.C.	HIRAH
MODERN TOWNS	(Kur)
ANCIENT RIVERS	=====
ANCIENT CANAL	-----

ANTIQUITY

At Kish, Professor Langdon was struck with the probability of a branch of the Euphrates having at one time flowed between the two portions of the city, Tal al-Uhaimir (Western Kish) and Harsagkalamma (Eastern Kish). He drew the provisional sketch plan here reproduced (FIG. 2) from the only available evidence, the relative positions of the mounds and a slight depression in which newly begun cultivation had produced a thin scatter of very short-stalked corn. His choice of situation for the conjectural old bed of the Euphrates meets with several objections, chief among them that the bed contemporary with the earliest occupation of the site would have to be sought beneath the alluvium deposited through all the succeeding centuries. In the position of the canal which he shows between the important mound 'W', where he found a large

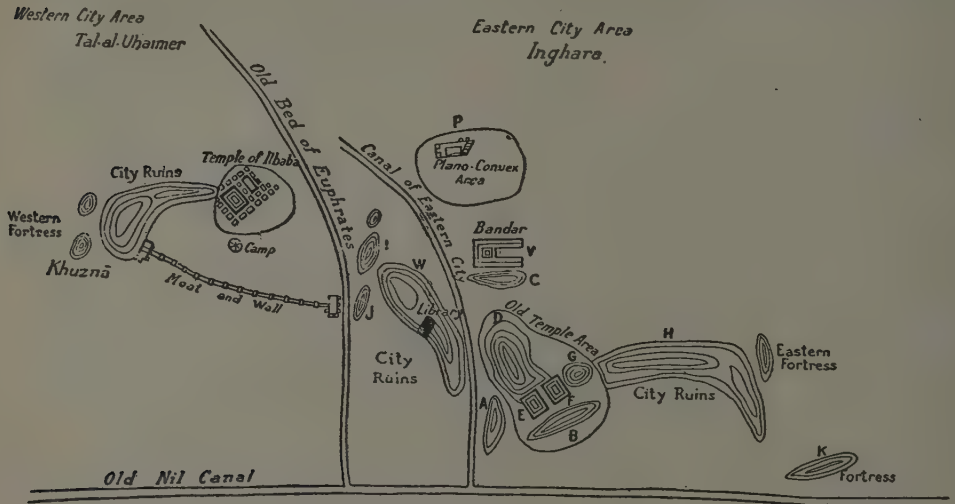
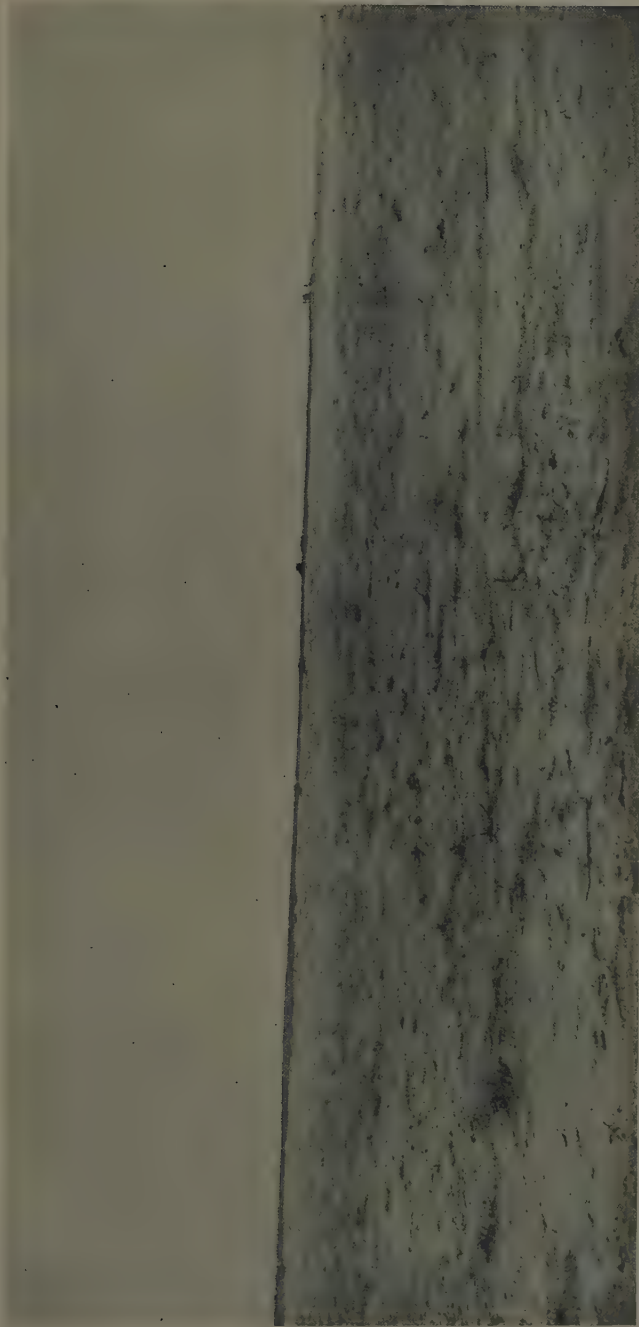


FIG. 2. PLAN OF KISH TO SHOW SUGGESTED POSITION OF THE OLD BED OF THE EUPHRATES
Langdon, *Excavations at Kish*, vol. 1

number of tablets in buildings of the Isin and Neo-Babylonian periods, and the great temple-complex of Harsagkalamma, there are actually the double lines of embankment of three canals. The westernmost of these canals curves slightly to embrace the eastern side of the 'W' mound; it must therefore, as was pointed out later, be regarded as contemporary with that mound (7), and, consequently, as Neo-Babylonian in date. Without further examination it is impossible to assign any precise periods to the two eastern canal beds. It should perhaps be explained here that after a canal has been repeatedly cleared of silt, the latter forms such high mounds on either side that it is easier and more economical to cut an entirely new channel alongside the original canal; and often in Iraq two or more ancient canal beds are seen close together. If, as imported slave labour, the Jews carried into captivity by Nebuchadnezzar had to keep in good order the canals of Babylonia, small wonder that the Psalmist wrote: 'By the rivers of Babylon, there we sat down, yea, we wept when we remembered Zion' (Psalm CXXXVII, 1)

⁷ E. Mackay, 'A Sumerian Palace and the "A" Cemetery at Kish', *Anthropology Memoirs, Field Museum, Chicago*, vol. 1, no. 2, p. 81.



THE LONG, LOW MOUNDS OF JEMDET NASR BEFORE EXCAVATION
Ph. D. Mackay

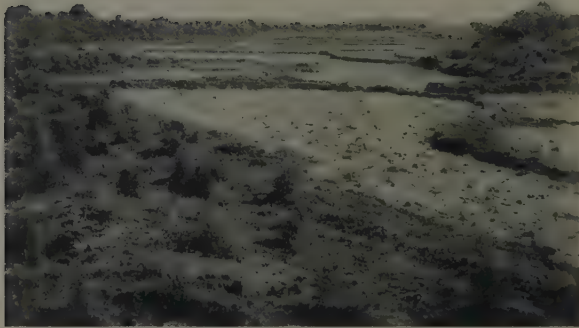
PLATE II



(A) FISHING BOAT ENGRAVED ON A STEATITE STAMP-SEAL FROM MOHENJO-DARO
Ph. Archaeological Survey of India



(B) FISHING BOAT SCRATCHED ON A POTSHERD FROM MOHENJO-DARO
Ph. Archaeological Survey of India



(C) OLD BED OF A BRANCH OF THE INDUS IN THE JUNGLE ABOUT TWO MILES
NORTH OF MOHENJO-DARO
Ph. D. Mackay

PLATE III

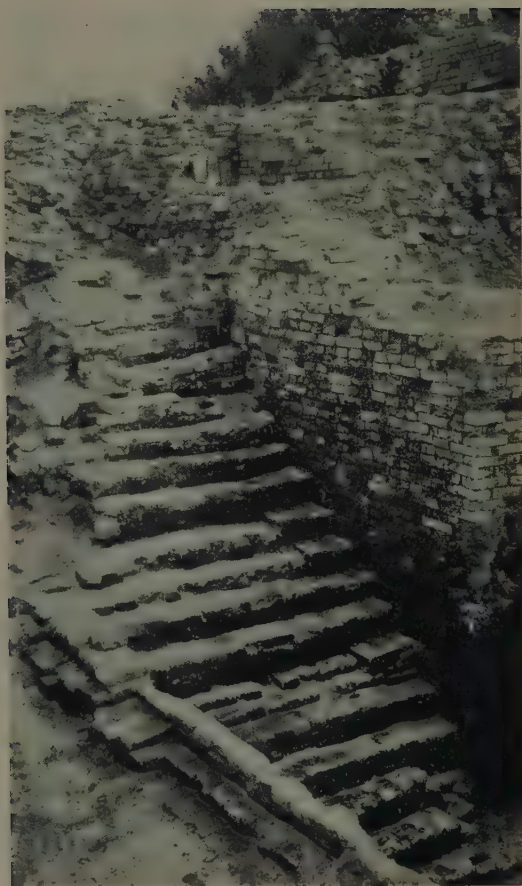


(a) RUINS OF A FORT (?) UPON WHAT APPEARS TO BE THE REMAINS
OF A CITY WALL, MOHENJO-DARO
Ph. D. Mackay



(b) SUBSIDENCE DUE TO A FLOOD WHICH CAUSED THE TEMPORARY
ABANDONMENT OF MOHENJO-DARO
Note the collapsed brick drain in the foreground
Ph. D. Mackay

PLATE IV



STAIRWAY AT THE (?) FORT DOWN TO WATER-LEVEL IN THE SOIL :
POSSIBLY A *GHAT* ON THE BANK OF AN OLD BED OF THE INDUS

Ph. D. Mackay

ANCIENT RIVER BEDS AND DEAD CITIES

In the course of trenching between the 'C' mound at Kish and the mouth of the lofty horseshoe-shaped Tal Bandar, fine water-laid sand was found (*ibid.* p. 82). It is significant that *bandar* is the Persian word for 'harbour', and since tradition lives long in illiterate countries it is perhaps justifiable to suggest that the 'old bed' of the Euphrates more probably ran between the 'W' mound and Harsagkalamma than to the west of the 'W' mound. Tal Bandar may actually have been a harbour on its course—or on the course of a canal which succeeded the river on its departure—its quays surmounted by a line of storehouses, though the mound has so far been regarded as a possible fortress. A more detailed investigation of the topography of Kish than has hitherto been possible, quite apart from further excavation of its buildings, would obviously be worth while; and aerial photography should be of great assistance.

At Ur there is more definite evidence available as to the city's position with regard to the ancient Euphrates*. An architect-drawn plan of the city of the time of Abraham (2100–1900 B.C.) (8) shows the river as washing the great rampart-wall along the western side of Ur, with a large west harbour whose entrance was protected by two moles that were continuations of the city-wall. Canals along the other sides virtually formed an island of the city. At its northern end, the north harbour, with an adjacent harbour temple, not only opened onto the outer canal, but was connected by another canal that passed right through the heart of the city with the river itself on the southwest side. It is hardly to be thought that a communicating system of waterways of such importance would have been established for the accommodation of a fishing fleet alone. The rampart which formed the base of the city-wall proper appears to have been built by Ur-Engur (Ur-Nammu) of the Third Dynasty of Ur, a period of great expansion when trade must have flourished far and wide. At that period, also, the coast of the Persian Gulf was quite near the city, before all the subsequent silting up took place; and maritime as well as river traffic seems more than probable. Evidence of trade between the cities of Sumer and those of the Indus Valley has been discussed elsewhere by Marshall, Mackay, Frankfort and others, and there seems no reason to suppose that it was exclusively by land.

When the Euphrates swung into another course and left dry the canals that ran off from it—at what period seems not yet to have been established—small wonder if the city went into an immediate decline; even superlative organization could hardly have saved its trade and agriculture from the results of such a blow. Of the ultimate fate of the unfortunate city it has truly been said, 'It is the paradox of the history of Ur that it ends in grosser darkness than it begins'. (9) Though other factors, conquest, climatic changes, epidemic disease, or political unrest, may have played their part in its undoing, no harder blow could have been dealt to the city than the defection of the river that was literally its life-blood.

At the quays of Hirah, a great trading city of Sassanian times on the west bank of the Euphrates, some 50 miles south of Babylon, ships from India and China, we learn from ancient writers, were wont to unload their cargoes for transfer by caravan along the desert routes to north and west. This city also appears to have suffered eclipse on the defection of the river, and in its place arose the Arab city of Kufah, founded by the Caliph Omar on the Euphrates some four miles to the northeast. A wide strip of fine sandy soil, devoid of potsherds or other trace of man's habitation, between the great expanse of ruins that once was Hirah and the ruins that now represent the earliest Kufah, suggests the position of the river in Hirah's halcyon days.

* Compare the air-ph. of marks near Ur, *ANTIQUITY* III, 342.

⁸ *The Antiquaries Journal*, vol. x, pl. xxxiii.

⁹ Gadd, *History and Monuments of Ur*, p. i.

Transfer from Kish to Mohenjo-daro in Middle Sind—an almost equally isolated spot—in the autumn of 1926 brought another great river to the writer's notice. The majestic Indus, mud-coloured and with many whirlpools, could be reached only by a walk or camel ride of four and a half miles from the ancient city: four and a half miles of scrub, in which low thorn trees and tamarisk, dust-covered and cobweb-hung, sword-like grass, and caper bushes with angular, leafless stems were the only four plants to be seen—a singularly depressing vegetation. Only two small hamlets of open-fronted, mud-built huts, thatched with scrub, relieved the monotony of that walk. The second season of our sojourn at Mohenjo-daro brought among the visitors to the excavations two aircraftmen sent by T. E. Lawrence from the R.A.F. camp near Karachi where he was then serving. They wished to see the Indus; we set out. After some three miles, what appeared to be a mirage lay across the jungle track. But it was no mirage; the river lay immediately before us. Gone the hamlet that we should soon have passed on our left; the track ended abruptly in a tiny cliff at whose foot the water lapped. Along a considerable part of its course through Middle Sind the river had side-stepped to the west during the flood season of the summer. This practical reminder of the vagaries of large rivers in their lower reaches led to search of the jungle around the excavation camp for traces of other previous beds of the river; PLATE II, C, shows a stretch probably left dry during the last few centuries at most. Moreover, the camp itself was obviously built on a former river bed of considerable width, but not as wide as the present Indus river. The soil of these old river beds is clearly distinguishable from the surrounding general alluvium by its colour, texture and other characteristics (10).

When during the season 1929-30 an obviously important thoroughfare, Central street, leading at right angles into First street, the main axis of Mohenjo-daro (FIG. 3), was found to be lined by buildings that lent themselves to interpretation as khans and storehouses for the accommodation of man and beast, and of the merchandise they carried, the question of possible river traffic arose. A trial excavation opposite the end of Central street, where a row of small mounds edged the old river bed to the west, revealed the presence of what appeared to be a gate in a wall, some 30 feet thick, which was, as far as could be ascertained in the short time available, constructed of burnt brick to the very core. Unfortunately, the financial crisis of 1931 necessitated the abandonment of this important piece of excavation, and it is to be hoped that it will be resumed at some future opportunity. The little fort-like building (PLATE III, A) further along the apparent city-wall towards the Stupa Mound was also partially cleared. This building has 'several features of unusual interest, including curious triangular projections, a 14 ft. thick outer wall, stairways leading up to rooms on a platform reared high upon a solid mud-brick core, and another stairway on the outside, whose descent was followed right down to the water-level in the soil' (E. Mackay, *op. cit.*, p. 4). Further examination of this fortress-like structure and the curious *ghat*-like stairway had also, most unfortunately, to be suspended. But even so, support is lent by their partial excavation to the suggestion of Mr R. D. Banerji, who first drew attention to the antiquity of the site, that the Indus, or a branch of it, washed the city's western wall.

There is another interesting piece of evidence to lend support to this idea. The northern portion of the great Stupa Mound has been shown by excavation to have been badly undermined and partially washed away at the close of the Intermediate (and most prosperous) period of the city. A great court north of the building which lies below the Stupa, and which can justifiably be assumed to have been a sacred building, for sites

¹⁰ Mackay, *Further Excavations at Mohenjo-daro, 1927-1931*, p. 4.

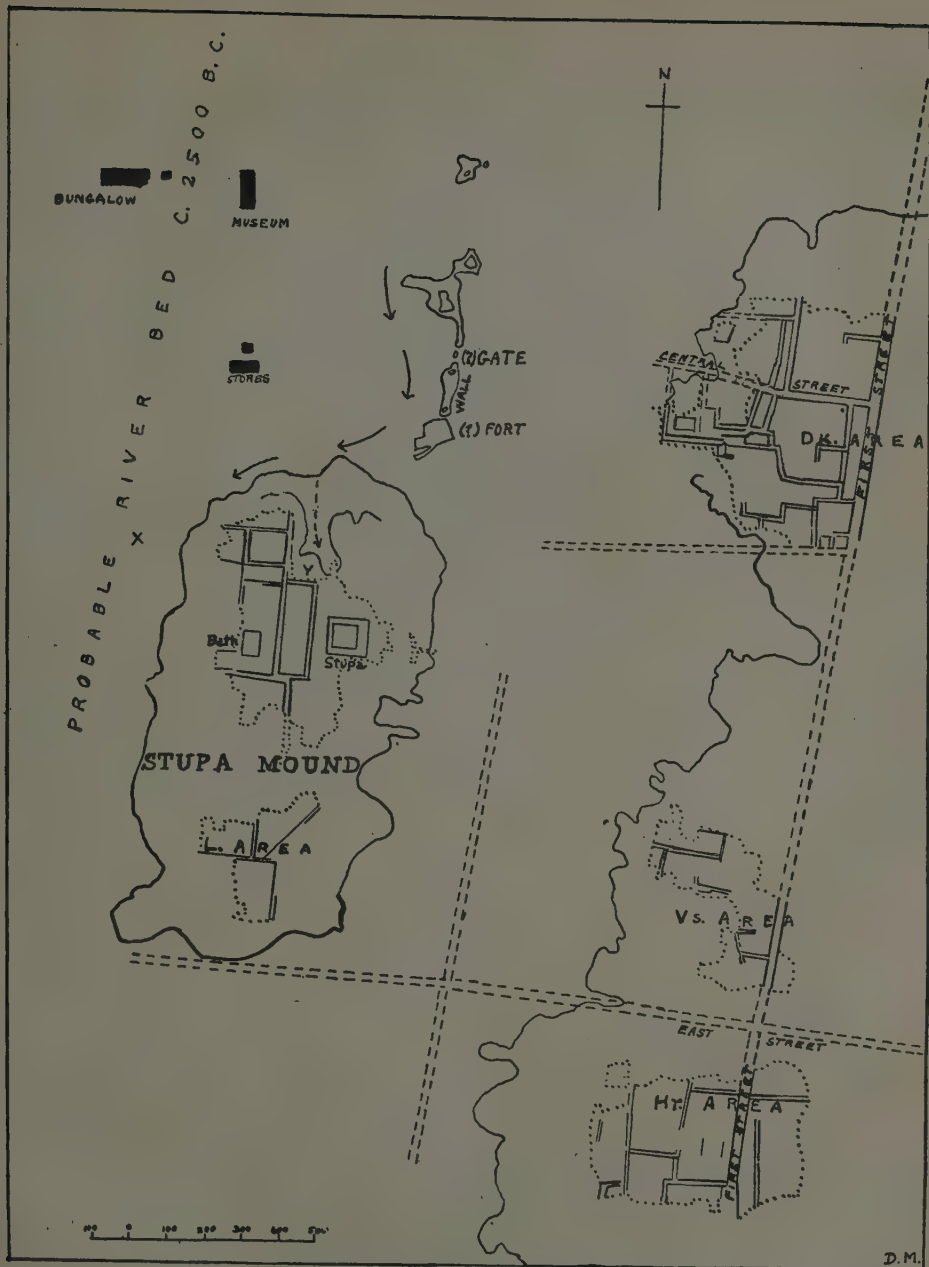


FIG. 3. SITE PLAN OF MOHENJO-DARO, WESTERN PORTION
After E. Mackay

once sacred tend so to remain, has almost entirely disappeared. The subsidence of the brick drain in the street to the west of this court (PLATE III, B) (and also the contour line inserted in the plan for the purpose) point to the flood having washed against the mound at γ with considerably greater force than would have been the case, had it not been canalized by approaching along a definite river-bed.

It will be objected that the river-bed on which the excavation camp now stands must date from some period much later than the *floruit* of the ancient city. But deep trenching before the little fort-like building already mentioned revealed the presence of sandy clay at the level of the foot of the *ghat*-like staircase. And to the west of the Stupa Mound deep dug-outs cut at x for the temporary shelter of the diggers in the first days of the excavations show the plain there to consist entirely of water-deposited silt. It is perhaps permissible to suggest that the old bed now seen along the western side of the ancient city may date from the period (c. A.D. 150) when a group of Buddhist monks chose the mounds as a suitable site, probably already held sacred, and safe above flood level, for their monastery and stupa.

In all probability other factors—among them attacks by raiders from the mountains of Baluchistan—played their part in causing the complete abandonment of Mohenjodaro, but it would appear that fate handed out to that city and Chanhudaro, and to Harappa on an old bed of the Ravi, much the same raw deal that was the lot of so many Sumerian cities—desertion by the rivers on which they stood, at once their tyrants, owing to the danger of flooding, and their life-blood.

With these personal observations, touching only the fringe of a wide subject, the writer would stress the importance of close and detailed study of changes in historical times in the lower and delta regions of the great rivers, as throwing valuable light on the history of the cities built upon their banks. An interesting account by G. Le Strange (11) of the changes of course of the lower Tigris and Euphrates, and of the canal systems of Babylonia, in Sassanian and Arab times, based in large part on the writings of the Arab geographers and various travellers of the Middle Ages, might well be carried back into the Sumerian and prehistoric periods in such detail as is available from inscriptional and other sources.

¹¹ Le Strange, *Lands of the Eastern Caliphate*, chapters II–V.

Aerial Reconnaissance of the Fen Basin

by F./Lt. D. N. RILEY

AERIAL reconnaissance and photography are of great importance in the study of the early history of Fenland and the surrounding country, conditions often being very suitable for this method of investigation. A vast amount of information which can be recorded easily by air-photography, would only be obtained with the greatest difficulty, if at all, by field-work on the ground. The present paper is a brief record of observations made while flying over the fen basin during the course of duty. Unfortunately photography was not practicable, but systematic notes were kept of everything observed (1). Further work should reveal much more.

GEOLOGY

The Fenland is bordered by chalk, limestone and clay country. Gravels are found along the edges of the fens and up the various river valleys in the area. The fens themselves are composed of fine silt on the seaward side and peat on the inland side.

The different subsoils affect air-archaeology in two ways, (A) by producing different types of country, some suitable, others unsuitable for occupation by early man, and (B) because on arable land soil-marks and crop-marks only appear on certain kinds of subsoil, others, particularly clay, being unfavourable. On old pastures which have not been ploughed since ancient times the second consideration is inoperative, as the ancient remains show as earthworks, whatever the subsoil may be. The following table summarizes the salient points of the different subsoils of the Fen Basin.

<i>Subsoil</i>	<i>Frequency of Ancient Sites seen from the Air</i>	<i>Earthworks in Old Pastures</i>	<i>Soil-Marks</i>	<i>Crop-Marks</i>
Chalk	Fairly common	Rare	Very Good ..	Good —
Limestone	None	—	—	—
Clay	Rare	Rare	Very Poor	Very Poor
Gravel	Common ..	Occasional ..	Poor	Generally Very Good
Silt Fen	Common ..	Common ..	Very Good ..	Good
Peat Fen	None	—	—	—

Clay, limestone and peat fen were unproductive of ancient sites and so need not be considered further in this paper. Chalk, gravel and silt fen were very rich and are described in detail.

THE CHALK HILLS

Chalk hills border the fen basin on the north, east and northeast. I saw very little of the Lincolnshire Wolds, which therefore must be omitted from this account, but quite often flew over the belt of chalk country which runs through west Norfolk, southern

¹ Luckily the late Major G. W. G. Allen made several flights to this area and took a considerable number of photographs, two of which are here reproduced by courtesy of Mr E. T. Leeds, Keeper of the Ashmolean Museum, where all the Allen photographs are now preserved.

ANTIQUITY

Cambridgeshire and northern Hertfordshire. Considerable areas of chalk are masked by boulder clay or gravel, but over large stretches of country the chalk lies immediately below the surface. Most of the land is arable and few ancient remains survive undamaged.

Considerable numbers of barrows have been destroyed, but they can still be traced by the circular ditches which once surrounded them which show up well as soil marks or crop marks (circles of this type are seen on plate 1). In some cases remnants of the barrows still defy the plough. The concentration of barrows is not spectacular, as in some parts of England, but the total number must have been large. They are, for example, widely distributed in the fifteen-mile-long stretch of country from Baldock, through Royston to Duxford. Among discoveries made in 1944, may be mentioned a line of four barrows 850 yards east of Combe Farm, Therfield, Herts. and two double circles at Clothall, Herts., 2400 yards NNW of the church. O. G. S. Crawford (2) and the late Major G. W. G. Allen both worked on the Royston district and recorded much that is new, but a thorough air-survey is certainly needed for the whole chalk belt.

Ancient sites are less common on the chalk of west Norfolk, and the peculiar patterns of soil marks caused in many places by the hummocky surface of the chalk makes them difficult to spot. However, I saw several circles in the country round Marham and Narborough.

Remains of occupation sites were seldom seen on the chalk, the only one of interest being at Narborough, Norfolk, where soil marks east of Narborough Yards revealed a series of rectangular enclosures (compare the similar site shown on plate 1). Romano-British pottery and animal bones were scattered over the surface. A few rectangular enclosures were noted in the parishes of Bygrave and Clothall, Herts.

No fresh information was obtained about the great linear earthworks and no new hill-forts were located.

GRAVELS

Gravels in parts of the Ouse and Nene valleys, in the Market Deeping area, and along the fen margin between Chatteris and Cambridge are rich in early sites. On the other hand, there is very little to be seen on the rest of the fen margin gravels or beside the smaller rivers, and the sands and gravels of Breckland are barren to the air-archaeologist. The explanation for these differences in the incidence of early sites visible from the air is probably that (A) only the wide spreads of gravel attracted early man, and (B) not all gravels are favourable to the development of crop-marks.

I. THE SOUTHERN MARGIN OF THE FENS

There were at least ten ditched round barrows (FIG. 1, sites 2, 3), one with triple ditches, and four circles (site 4) visible in the fens SE of Chatteris. The circles are no doubt the ditches of ploughed-out barrows. The land here is composed of gravel subsoil with a fairly thin covering of peaty soil, and for aerial study is much the same as ordinary gravel country, except that soil marks are much better, there being a greater contrast of colour between the soil (black and peaty) and subsoil (yellow gravel) than usual.

One barrow (site 9) and two circles (site 11) were seen near the Fen margin at Willingham and NW of Histon were two circles (site 20) on gravels left by an old course of

² See *P.P.S.*, 1936, 97 ff.

AERIAL RECONNAISSANCE OF THE FEN BASIN

the Cam. In a pasture NE of Wenny Farm, Chatteris (site 1) is an interesting group of small circular ditches about 30 ft. in diameter and without mounds or banks; they may be compared to the groups of small circles shown by soil-marks in the silt fens.

Settlement sites are more prominent than the barrows and circles, which are relatively scarce compared with some areas. The sites all lie on gravel, except one on Lower

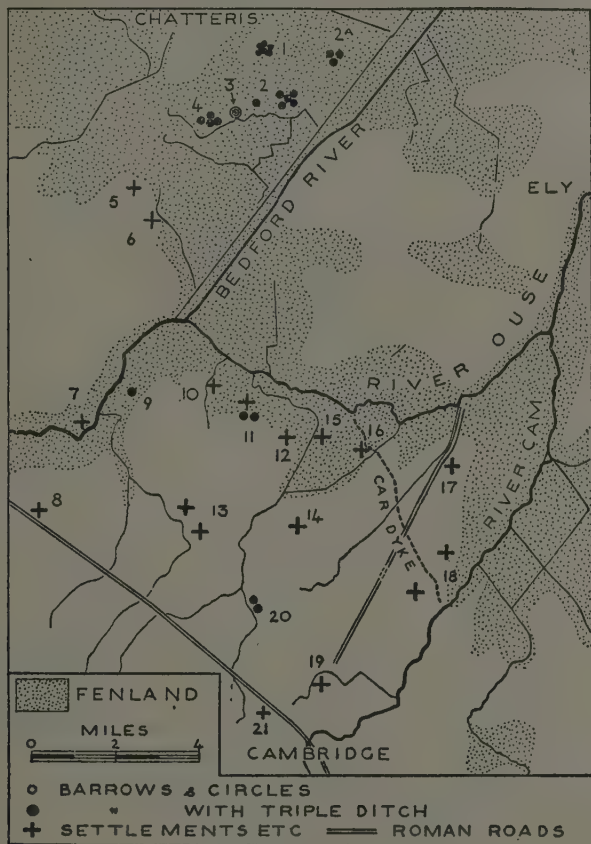


FIG. 1

Greensand at Cottenham (site 14). Owing to the low level of much of the land, there are many old pastures, and four sites (7, 10, 16 (3), 17) remain as earthworks. Site 5 is partly destroyed and the rest show only as soil-marks and/or crop marks. The majority (5-7, 10, 13, 15-19, 21) consist of groups of rectangular enclosures, often overlapping each other. Sites 8 and 14 include both round and rectangular enclosures.

³ This site, near the Car Dyke, at Cottenham, has been known for a long time, see Fox, *Archaeology of the Cambridge Region* (1923), p. 223.

ANTIQUITY

There are two large enclosures near Willingham. Site 11 is a large double-ditched, four-sided enclosure, with round corners. Site 12 is similar, but larger (estimated 250 by 300 feet), with sharp corners and two or three ditches on all sides but the south.

2. THE OUSE VALLEY

Occasional crop-mark sites were seen as far up-stream as Newport Pagnell, though they were most frequent between St. Neots and Huntingdon.

Circles appeared here and there, for example at Lathbury, Bucks. (one); Fenlake, SE of Bedford (three); Buckden, Hunts. (three). NW of Moor End, Felmersham, Beds. was a fine double circle. There were settlement sites with many enclosures at Brampton, Hunts. (N of Grove Farm), S of Fen Drayton, Hunts. (FIG. 1, site 8), and NE of Godmanchester, Hunts.; the enclosures were respectively round, mixed round and rectangular, and all rectangular. Finally, at Little Paxton, Hunts. (1200 yards SW of the church), and possibly also SW of Brampton, Hunts. are traces of big stockades, indicated now by lines of large post-holes (4).

3. THE NENE VALLEY

Flying down the Nene from Northampton to Peterborough nothing of archaeological interest was seen in 1944 except in the Wansford-Castor area. Here the valley widens and there are many signs of early occupation. I first examined the area at the suggestion of Dr J. K. St. Joseph in the hope of rediscovering some of the numerous Roman houses shown on the map in Artis' 'Durobrivae'. This was not realized, but disappointment was removed by the sight of many other interesting remains (FIG. 2).

The earliest are presumably the circles, of which I noted 24 (18 single, 6 double), often in small groups. The diameter is normally of the order of 60 to 80 feet, similar to those seen in such numbers on gravels or chalk elsewhere, but there are two exceptions, a single (FIG. 2, site 7) and a double circle (site 12), which are of exceptional size (estimated diameter approx. 300 feet) and have narrow and very accurately cut ditches.

The peculiar triple circle at Thornhaugh (site 1) may be mentioned here, though it actually lies off the gravel in a marshy valley. It has escaped ploughing. There are three ditches of different widths, approximate measurements (paced) being 12 feet for the outer, 30 feet for the second and 45 feet for the inner. The diameters are approximately 150 feet, 350 feet, and 500 feet. Between the second and inner ditches is a low bank; the central area also appears to have been embanked, but mutilation caused by a recent farm track makes it difficult to discern its original condition. There are narrow causeways across the inner ditch on the north and south of the central area.

Turning to the Roman sites, in which the Castor area is so rich, the most important is the camp (site 9) discovered by Crawford in 1930 (5) and recently described by Hawkes (6). The western end of this showed clearly, with gate and multiple ditches. Through the camp, running WNW-ESE, was a central road with ditch or gutter on either side. The eastern end did not show in 1944. On the other side of the river was seen the single-ditched camp (site 5) published by Margary (7). On the site of the Roman town, 'The Castles', at Chesterton (site 11), the rampart, the streets and traces of

⁴ Similar stockades near Castor, Northants. and Market Deeping, Lincs. are mentioned below. Others in the Upper Thames valley are described by the present writer in *Oxoniensia* VIII.

⁵ *ANTIQUITY*, 1930, IV, 274.

⁶ *ibid.* 1939, XIII, 178 ff. See also I. D. Margary, *ibid.* 455.

⁷ *Ant. Journ.*, xv, pl. XIII.

AERIAL RECONNAISSANCE OF THE FEN BASIN

buildings were outlined in the crops. The usual chess-board town plan was absent and the streets were irregular, the only straight road being the Ermine Street, which bisects the town. The Roman roads of this district have been discussed already by Margary (8) and I am unable to add any new information. The Roman road called Lady Coney-burrow's Way by Artis (site 8) and its continuation (site 14) showed well.

Of uncertain date are four stockades (sites 2, 3, 4, 13) and several groups of small enclosures (sites 2*, 3, 7, 8, 10) presumably settlement sites.

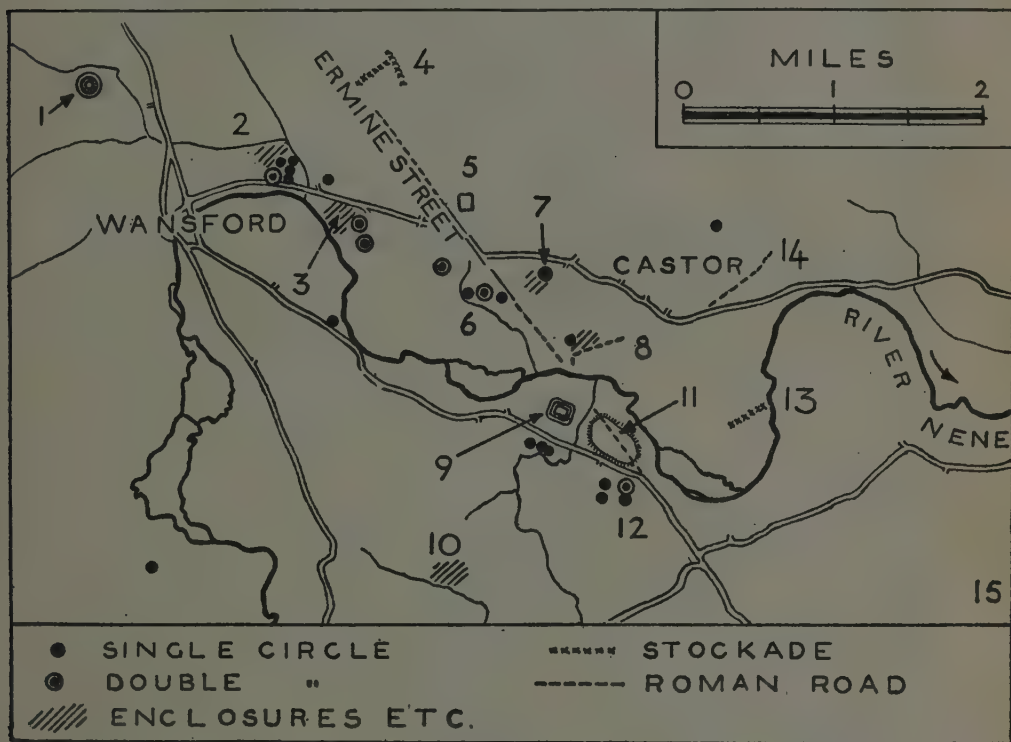


FIG. 2

4. THE MARCH GRAVELS

On the fen islands at March and Stonea and on fen margin gravels between Eye and Thorney, are remains of settlements and fields similar to those of the silt fens, described below (p. 153). Groups of small circles of the type seen on the silt fens occur north of March and at Stonea. These sites are included with the silt fen sites on FIG. 5.

Earlier occupation is probably indicated by barrows at the Gores, Thorney and at Stonea (600 yards s. of Daintree Farm) each with ditch and remains of central mound. Several circles west of Stonea probably remained from other barrows.

⁸ *ibid.* 113 ff.

* First seen by me July 1939 and photographed at once by Major Allen.—O.G.S.C.

ANTIQUITY

5. THE MARKET DEEPING AREA AND THE WESTERN MARGIN OF THE FENS

At the edge of the 'highland' along the western margin of the fens from Peterborough to Heckington (nr. Sleaford) runs a strip of gravel, generally narrow, but broadening round Market Deeping to a width of up to six miles. The Car Dyke, the old canal which borders the fens, runs for almost all this part of its course along the strip of gravel. The rivers Welland and Glen flow through the Market Deeping area and it is traversed by King Street, a Roman road. When I flew down it last summer, the gravel country was devoid of any signs of early settlement except in the Market Deeping area, which was very rich in crop-mark sites, the positions of which were noted down

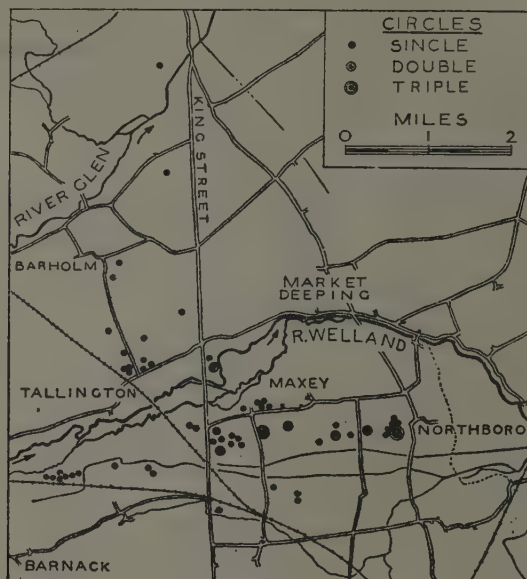


FIG. 3

from time to time and are here shown on FIGS. 3 and 4. Further work should add many more.

The circles (PLATE 1) are generally of the usual sizes and types; 51 are single, 5 double and 2 triple. Much of the original barrow remains within a circle immediately northeast of Tallington railway station. Two of the double circles (below the 'A' of Maxey and 'N' of Northboro') (FIG. 3) are exceptional in having a very large outer ditch and a comparatively small inner one (diameters approx. 250 feet and 70 feet respectively). A small ring (diam. approx. 20 feet) of post-holes showed in the western side of the former between the inner and outer circles.

A long rectangular enclosure near the group of circles north of Barnack has been published by C. W. Phillips (9) and compared with the similar but larger enclosures near the Upper Thames (10), for which an early date has been suggested.

⁹ *P.P.S.*, 1935, pl. xix.

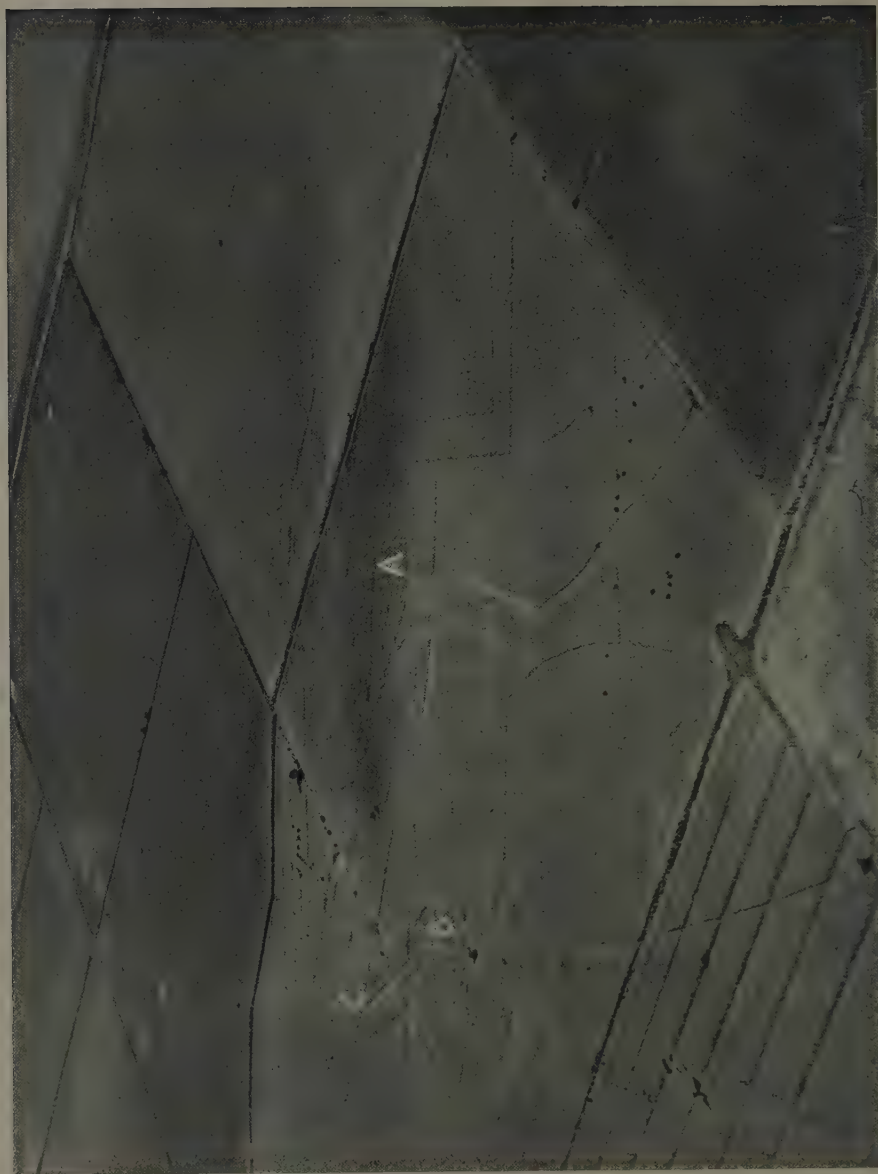
¹⁰ *Ant. Journ.*, xiv, 414 ff.

PLATE I



CROP MARKS AT NORTHBOROUGH, NORTHAMPTONSHIRE (WEST OF THE MANOR HOUSE)

PLATE II



EARTHWORKS IN A PASTURE AT GEDNEY HILL, LINGS. (about 1 mile nw of the railway station)

AERIAL RECONNAISSANCE OF THE FEN BASIN

Large areas are covered by old fields (FIG. 4), shown up by their boundary ditches, and there are many settlement sites, indicated by groups of rectangular enclosures. Lanes are seen in many places running between the fields or enclosures. PLATE I shows what appear to be a settlement site and various field boundary ditches. It will be noticed that they are crossed by the furrows of later strip-cultivation. These remains are very similar to those in the silt fens, which were Roman.

Stockades, indicated by long lines of big post-holes, occur in surprising numbers. Near Bainton a whole series of them were seen (shown diagrammatically on FIG. 4) and one end appeared to abut on to a ditch connected with a settlement or field-system.

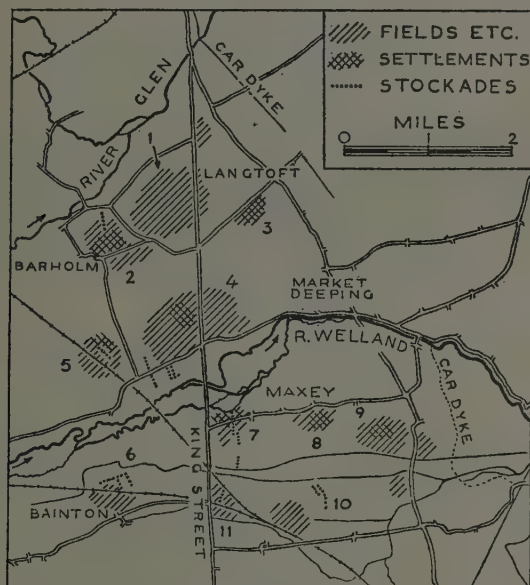


FIG. 4

sw of Maxey, a stockade intersects a settlement site. In two places there are double stockades.

Nothing was seen in the upper parts of the valleys of the Welland and Glen. I did not examine the valleys of the Witham or of the small river Slea, near Sleaford.

6. NORTHERN MARGIN OF THE FENS AND THE BAIN VALLEY

The northern margin of the Fens, like the western, is fringed with gravel, which covers quite a considerable area round Coningsby and Woodhall Spa and extends up the valley of the Bain. I visited this area several times, and though occasional crop-marks were seen, all appeared to be due to ditches of recent origin, and no ancient sites were visible in 1944.

ANTIQUITY

7. EASTERN MARGIN OF THE FENS, BRECKLAND AND THE LARK, LITTLE OUSE, WISSEY AND NAR VALLEYS

These gravel areas were disappointing. Breckland is now largely tree-covered and its sands and gravels are probably not suitable for the production of crop marks, in any case. The river gravels showed very little. However, what may be an important discovery was made at Ixworth, Suffolk (NE of Bury St. Edmunds), near a small stream, tributary to the Little Ouse. South of the village, crop-marks showed what appeared

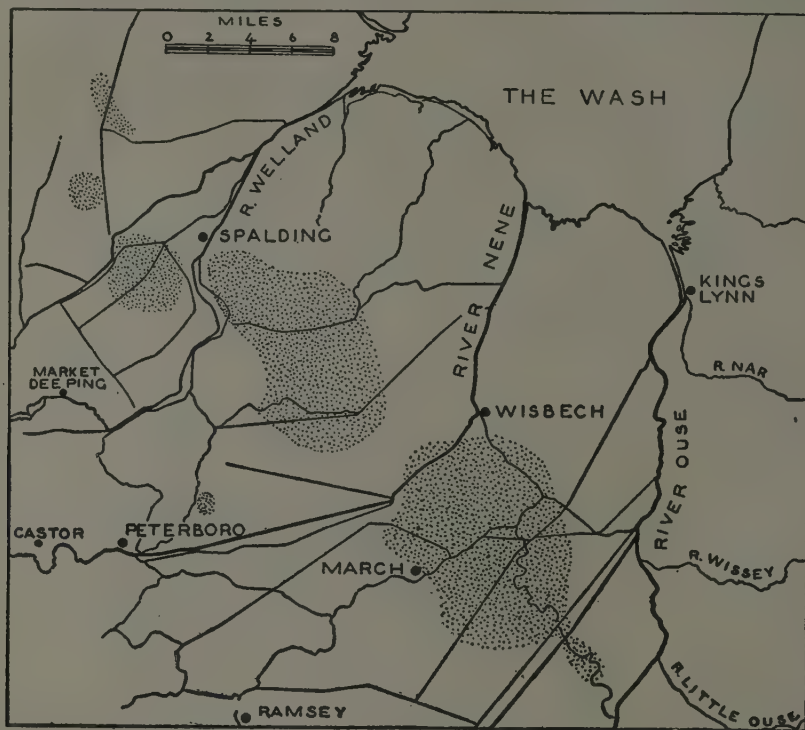


FIG. 5

to be another Roman camp of the same type as that near Castor. It was diamond-shaped with rounded corners and defended by triple ditches. The site was partly obscured by modern roads and by an unsuitable crop in one field, so that the only gate which could be made out was one in the middle of the southeastern side.

Southeast of Ixworth a circle was seen, and west of Hockwold-cum-Wilton, Norfolk, on the edge of the fens, a large complex of rectangular enclosures resembling the silt fen sites.

THE SILT FENS

The fen soils vary considerably in colour, and from the air the silt fens (yellowish soil), the peat fens (black soil) and the 'highlands' (brown soil) can easily be

distinguished. Looking at the ground more closely, one sees innumerable old river and stream-beds, and in parts of the silt fens, very extensive systems of ditches dug in connexion with Romano-British settlements and fields. These early remains, which have been known for some years, are among the most important archaeological discoveries to have been made from the air in Great Britain.

The sites seen from the air sometimes remain as earthworks in pastures, but generally lie on arable land and show as soil marks and crop marks, due to the rich peaty soil which accumulated at the bottoms of the old ditches. In brief, the main features seen are (A) groups of small enclosures, often rectangular in shape, surrounded by (B) extensive systems of small fields, between which run (C) many droves or farm-tracks. The ditches are often very complicated. There are also (D) many groups of small circles.

One of Major Allen's air photographs is reproduced (PLATE 2) showing a settlement site in a pasture near Gedney Hill, Lincs. Part of this land is now under plough and the ditches appear as soil marks (dark lines). I walked over the ground in 1944 and around A and B found it littered with animal bones and fragments of Roman pottery. There were several large fragments of rotary querns. The excavation of sites of this type, particularly in places where they have not been disturbed by modern ploughing, should yield new information. There are many points of resemblance between the sites on the silt fens and the settlements and occasional field systems seen on the gravels.

The approximate areas covered by these Romano-British remains is shown on FIG. 5. It will be seen that I was unable to trace any near the modern coast-line on what is now good land.

The groups of small circles do not appear to have been noticed previously. They cannot be connected directly with the Roman sites, though they have a similar distribution. The circles show as rings of dark soil between 30 and 50 ft. diameter (the circles on the gravels are usually 60-100 feet diameter) and must mark the positions of circular ditches in which peaty soil accumulated. Double circles and straight-sided ovals are seen occasionally. The circles may occur singly, but are generally in groups, often of as many as 20 or 30, and the total number in the silt fens must run into four figures (11). They often intersect each other. I have walked over two groups of circles on ploughed land and saw no traces of any mounds or banks. Their origin cannot be settled without excavation; some agricultural operation may account for them, but the most likely explanation seems to be that they were small and low ditched round barrows. To judge from Major Allen's photograph, two small circles I noted at the Gedney Hill site were originally small barrows (C on PLATE 2).

In Euximoor Fen, Upwell, Cambs. (south of Ivy House Farm), was seen a line of five larger circles, the diameters of which were estimated to be between 60 and 80 feet. These were presumably the ditches of barrows of normal size.

Finally, I should like to acknowledge the help received from Dr J. K. St. Joseph in the preparation of this article.

¹¹ It is difficult to find similar groups of barrows or circles in England, but close parallels are seen in Dutch urnfields, for example those published in *Oudheid. Meded.*, xiv (1933), 26 ff. and xvii (1936), 38 ff, where numerous small circular ditches and occasional double circles and long ovals are seen. These are of Iron Age date.

Notes and News

FARMSTEADS IN CENTRAL INDIA

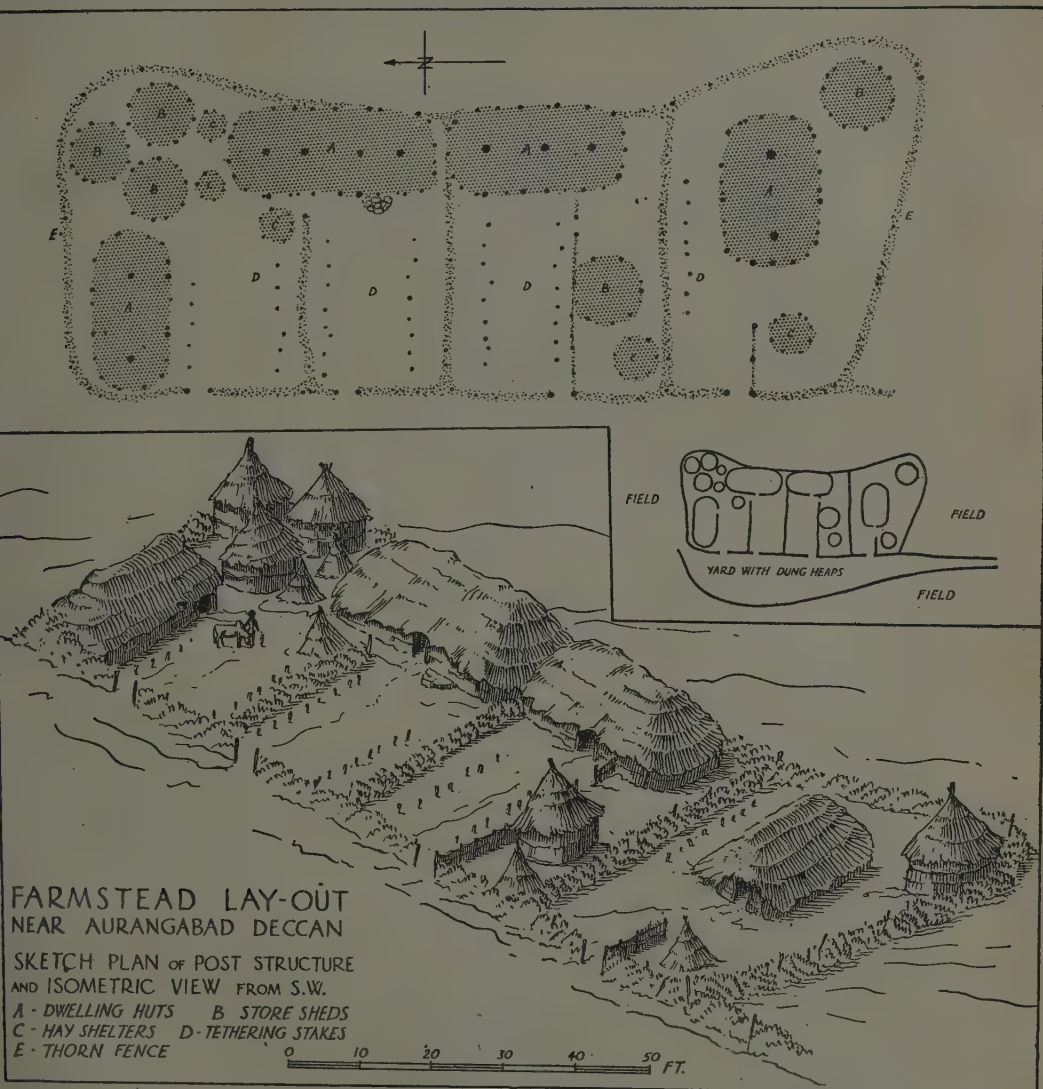
To the archaeologist in western Europe who is concerned with the interpretation of the plans of prehistoric houses, farmsteads or villages of which the extant remains may consist only of a complex of post-holes or bedding-trenches, drainage ditches and boundary banks, the arrangement and plan of buildings in modern primitive agricultural communities can be of considerable interest. Many such communities are not sufficiently 'primitive' for their material culture to be studied and recorded by the majority of anthropologists nor, save in exceptional cases, do anthropologists who have not concerned themselves with the problems of excavation and field-archaeology bring to bear on the study of the houses, granaries, shrines, haystacks or pigstyes in the culture they are describing the view-point of the excavator who seeks details of construction and lay-out to assist him in disentangling his often apparently meaningless groups of post or stake-holes. The archaeologist who is fortunate enough to come in contact with such simple cultures has however an excellent opportunity for the observation and record of features which directly concern him : notable for instance is the use made by Dr Gerhard Bersu, in his interpretation of the Little Woodbury farmstead site, of his wide knowledge of primitive agricultural settlements (e.g. the identification of the 'working places' of the British Iron Age on modern Egyptian analogies) and his pupil Werner Buttler similarly used material from contemporary peasant cultures in Central Europe in his study of the Köln-Lindenthal Neolithic village.

So much by way of apology for publishing here details of farmsteads from by no means the most primitive part of India—the Deccan plateau between Aurangabad and the famous Ajanta rock-cut temples with their paintings of the VIth century A.D. In December 1944, when visiting this region I was able to make notes and a rough sketch-plan of a typical farm which in its simple post and hurdle construction offers instructive parallels to the type of building familiar to archaeologists in prehistoric Britain. The essential unit of these farms consists of a dwelling-house, oblong with rounded ends and a single door usually in the long side, and one or more circular store-houses ; the whole surrounded by a fence of thorn branches which also includes a space for a cattle-yard in front of the house. At the site illustrated here, a group of four such units are grouped together so as to form a single lay-out, sharing outside a common yard containing the dung-heaps and midden, all enclosed by thorn fences and set in the arable fields with a pathway leading to the nearest road.

The houses are not of very robust construction but the ridge-pole is supported on fairly stout timbers. The thatched roof comes down near to or actually in contact with the ground and the walls are of rough hurdling, without mud daubing, attached to irregularly spaced poles. Fires are lit inside if absolutely necessary in the rainy season but outside whenever possible : there are no windows and the door is the only means of admitting light. The circular store-sheds are of similarly light construction, without a central post and with the conical thatched roof rather precariously capping the light hurdle-work walls, while the small hay shelters consist of light conical thatched structures the supporting sticks of which are driven obliquely into the ground. In front of the house are lines of small stout posts driven well into the ground and used for tethering the

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cattle at night. The fences of thorn branches are lightly staked down at irregular intervals but have stronger posts at the entrances to the individual units, which can be closed by hurdle gates.



In the accompanying plan the post-structure is emphasized as this alone, with possible traces of the beaten mud floors of the houses, would survive for the archaeologist. The very effective thorn fence would, with the exception of a few scattered stake-holes, vanish

completely. Many of the smaller stake-holes would be likely to become undetectable in the course of centuries, while rebuilding, alterations and additions to the simple primary settlement would in a generation or two produce the maze of post-holes seen on such a site as that of the Late Bronze Age on Thorny Down, Wilts, or in the Iron Age on the Little Woodbury site.

STUART PIGGOTT.

KELLIWIC IN CORNWALL

It is a notable feature of the Welsh traditions, that in those portions not affected by the influence of Geoffrey of Monmouth (e.g. the tale of 'Kilhwch and Olwen' (1)) the site most intimately connected with king Arthur is neither Caerleon nor any other Welsh stronghold, but 'Kelli Wic in Cornwall'. Such a deviation from the natural course of folklore suggests that Arthur's Dumnonian origin (or at least residence) was too deeply embedded in Welsh folk-memory to permit representing him as a native of Wales.

It is now generally conceded that the association of king Mark with Castle Dore near Fowey is rooted in genuine historical tradition (2), and Mark was traditionally a cousin of Arthur (3). The site of Kelliwic is thus a matter of some historic interest. If it could be identified, its future excavation would be worth consideration.

Unfortunately, Cornish topography is rich in place-names bearing some resemblance to Kelliwic. Consequently, Arthur's *llys* has been located at something like a dozen sites, ranging from Gweek Wood on the Helford river (4) to Week St. Mary, near Stratton. The older Cornish antiquaries, however, had no doubt that Callington, in southeast Cornwall, was the proper site (5). In more recent times, Kelly Rounds, an earthwork near Bodmin, has been most widely accepted (6).

That Kelliwic was no creation of a story-teller's fancy, and that it lay within the modern county, is demonstrated by the appearance of *Caellwic* in a group of three Cornish manors given by king Egbert to the bishop of Sherborne, c. 825-39 (7). The other two manors are identifiable as Lawhitton near Launceston and Pawton near Padstow. These circumstances would make it highly probable that the modern representative of Kelliwic would bear a name ending in -ton. Such a consideration would favour Callington, but falls short of proof (8).

Such proof appears to be furnished by Henderson, who says (I find no reference to his source) that '... about 909 archbishop Plegmund, wishing to endow his new Saxon bishopric of Crediton ... granted it *three manors in Cornwall*. Of these, *Polltun* is certainly Pawton ... *Coelling* may well be Kelly in Egloschayle ... (9)'.

It is hard to doubt that the same three manors are involved in both grants. But the *Caellwic* of c. 830, reappears as *Coelling* (for *Caelling*) in 909. This would of course be 'Calling' in modern spelling. Whether this represents a mere Anglicization of

¹ Most easily accessible in Lady C. Guest's *Mabinogion* (Everyman), pp. 95-135. See especially pages 103, 134 and 319.

² C. G. Henderson, *Essays in Cornish History* (Oxford, 1935), 26-8. H. O'N. Hencken. *The Archaeology of Cornwall* (Methuen, 1932).

³ *Mabinogion*, 141. ⁴ J. Loth, in *Revue Celtique*, v. 33, 262.

⁵ Hals, quoted by Polwhele, *History of Cornwall*, II, 50.

⁶ First suggested by W. H. Dickinson, *King Arthur in Cornwall*.

⁷ Henderson, op. cit. 146, referring to 'St. Dunstan's letter to King Ethelred, Crawford Charters, Bodleian Library'.

⁸ The identification with Callington has been made already by Ekwall in the *Oxford Dictionary of Place-names*, and it may be accepted as certain. O.G.S.C.

⁹ Henderson, p. 121.

Caellwic, or an alternative name, it points very clearly to Callington. The Domesday spelling, Calwiton (? for Calwic-ton), offers further confirmation, as does the mention of $\frac{1}{2} \times \frac{3}{4}$ *leucae* of wood at Callington (*Kelli* or *Celli* = 'wood' in Cornish).

A map of the older road-system of Cornwall (10) indicates Callington as probably the most important road-junction in the extreme southeast of Cornwall. One road runs directly west to Liskeard, another directly south to meet a more coastal route to Liskeard, while a third goes north to Launceston and Kilkhampton. Its proximity to the Tamar estuary, to the Lynher river, and to the ancient monastery at St. Germans is also notable.

The second element of Kelliwic, while it has vanished from the modern name of Callington, still clings to a (11) 'defensive earthwork with single bank' of the 'village round' type, known as 'Castlewitch'. Close by is another earthwork of the same type, 'Killabury', at Newton in Northill. These are not impressive fortifications, but there is nothing in the tradition which would lead us to expect anything of the sort. Kelliwic is never called a *caer* or *dinas*.

P. K. JOHNSTONE.

THE BONE 'GOUGES' OF MAIDEN CASTLE AND OTHER SITES

In the recent excavations at Maiden Castle seventy examples were found of the bone 'gouges' common also on other British Iron Age sites. These implements, varying round about $6\frac{1}{2}$ inches in length, made usually from the tibiae of sheep and goats, are pointed at one end while at the other they are often bored longitudinally to receive a handle and pierced transversely for the rivet that held it in position. From Glastonbury comes evidence for a wooden handle; from Wookey Hole and Swallowcliffe Down for rivets of both bone and iron.

After discussing the possible use of these implements the excavators say: 'On the whole the theory that they were used as shuttles, some with and some without the attached handle, seems to present the least difficulty, in spite of the rough untrimmed butts which some of them present. Bone shuttles of similar size, though more highly finished, are in use in Northern Africa to the present day (p. 304, note 3. Information and specimen from Mr O. G. S. Crawford)'.

This theory seemed puzzling to me as I had never seen any shuttle or other form of weft carrier resembling the 'gouges', and I therefore asked Mr Crawford if I might see the specimen referred to. He kindly sent one to me, but it proved to be a wooden needle from the Aurès, Algeria, $6\frac{1}{2}$ inches long, an interesting form with two eyes used in sewing coiled plait baskets. Though of approximately the same size this specimen could have no bearing on the possible use of the gouges as shuttles, nor could the latter have been basketry needles for their shape excludes it, while plenty of real needles were found on the site.

The 'gouges' must therefore be considered on their merits as weaving tools, for which there is some evidence from their association with other weaving material such as loom weights, combs and spindle whorls. The untrimmed butt would make them very awkward as weft carriers, and moreover abundance of pierced metatarsals occur, useful for bobbins of weft as well as for other purposes. I would suggest that the 'gouges' are a kind of beater in, somewhat akin to the 'sword' or 'dagger' beater of the North. The suggestion is so obvious that one wonders it was not made before, but possibly the quantities of weaving combs found made it seem superfluous. Why should two kinds of beater be required? In my experience weavers on primitive hand looms, whether horizontal or upright, do often use two beaters, a 'sword' and a 'pin', sometimes

¹⁰ V.C.H., Cornwall, v. 1.

¹¹ *Journal of the Royal Institute of Cornwall*, 1902, xv, 114.

even three, as in the case of a Syrian whom I found using a 'sword', a 'pin' and a heavy hand comb. On the warp-weighted loom (the type probably used at Maiden Castle to judge from the finds of loom weights), evidence from the Icelandic survivals shows two beaters in use, the *Skeid*, a 'beaterboard' or 'sword beater' made of fish bone, and the *Hroell*, a 'pin' beater made of bone or wood.

These comparisons serve well enough to show that the use of two types of beater is not unreasonable, but neither the 'gouge' nor the comb exactly resemble those above mentioned. In what way can one think of their use and how did they supplement each other?

The 'combs' are now generally accepted as beaters because of their frequent association with other weaving material, as, to cite only one instance, at Swallowcliffe Down, where Dr R. C. C. Clay found some in a pit together with loom weights and the charred remains of a loom (*Wilts. Arch. Mag.* 1925, vol. 43, p. 76). Earlier there had been controversy, when Bulleid and Gray advanced the theory that their use was 'to push home the weft', and Ling Roth made those experiments with types from Glastonbury and Mortlake which led him to reject it and suggest instead that they were skin scrapers! (H. Ling Roth, *Studies in Primitive Looms*, 1918, pp. 130-40). He retained the poorest opinion of the combs as beaters, complaining that their shape was 'concavo-convex', not flat, and the teeth irregular, and that consequently they caused the warp 'to be displaced laterally'. This last observation suggests to me a peculiar value. Warps on primitive looms have a devastating tendency to draw in to a waist and conceal the weft, and the action of the comb in thrusting them apart would help to counteract this. Has not the comb within itself the germ of our modern comb or reed which is both warp-spacer and beater-in? The spacing achieved by the little comb with its half-dozen or so of irregular teeth would be very rudimentary, but to Iron Age people with their penchant for twills any assistance in keeping the desired proportion of warp to weft would be welcome.

But Ling Roth was right; the combs beat up inefficiently, and I think that the Maiden Castle and other weavers must have been glad to supplement them with their bone 'gouges' or 'dagger' beaters as I should like to call them. They may have been used to beat up sideways, as is usual with the 'sword' beater, or point-wise as with the 'pin' beater and have served also for those other purposes to which primitive weavers put their beaters, i.e. to hold open the shed for the passage of the weft or to raise special pattern threads as required.

The handle would be an advantage in these processes, but not essential, thus solving the difficulty, raised by Mrs Cunnington, of finding a purpose for which all types could be used. (*All Cannings Cross*, 1923, p. 82). Further, the beating assumed would give full value to an observation made at Glastonbury that 'it is evident that they were subjected to hard usage and thrown away when their condition rendered them no longer useful for carrying out satisfactory work'; such could not have been the case were they weft carriers. (See Bulleid and Gray, *Glastonbury*, p. 419).

This suggestion that the bone 'gouges' are really beaters may be rash on so little evidence, but I hope that archaeologists will keep it in mind as a possibility when finding and handling these interesting tools.

GRACE M. CROWFOOT.

FARMERS AND FORESTS IN NEOLITHIC EUROPE

Dr Grahame Clark in building up his argument that neolithic farmers were not deterred from settling in forests if the soils beneath were cultivable, makes use, in one instance, of a fallacy. It arises from the fact that 14, or one in 6, of the long barrows

visited by Crawford in the Cotswold region were situated in spinneys, plantations or woods. From this Dr Grahame Clark infers that many megaliths and long barrows are visibly placed on soils well suited to the growth of trees. Whereas, what the existing tree-growth on long barrows shows is nothing more than that by artificially accumulating a good depth of earth, the neolithic barrow-builders created conditions most favourable for afforestation. The wind and animals, mainly birds, soon supplied the necessary seeds for a scrub growth which in its turn provided shelter for saplings. In the Cotswolds this natural afforestation is also common enough on round barrows and is perhaps even more noticeable on the sites of Roman villas, especially where the adjacent slopes were cultivated. At Chedworth, near Northleach, the large villa was buried beneath several feet of soil, washed presumably from the adjacent cultivated hill-side in the interval between the decay of the villa in the fifth century and its discovery in the mid-nineteenth century. During this intervening period a tall forest of beech and oak, with much undergrowth, arose upon the area. The Roman villas on the Cotswold escarpment above Winchcombe are also in woods or spinneys which doubtless in the same way arose upon, or on, the downwash from cultivated soils. Hence it would appear that in the Cotswolds, owing to the long break in the occupation of the upland sites during Saxon times, man's excavations and agricultural activities, created rather than destroyed forests.

The truth is that Dr Grahame Clark could scarcely have brought forward a region more ill-suited to his general argument than the essentially-pastoral Cotswolds. The long-barrows here are for the most part in commanding positions—in exactly those positions which one would expect to be chosen if the country were open and the skylines easily discernible. The long-barrows that are today in woods and spinneys are as well sited in this respect as those that are in open country (1).

The above criticisms do not impair the validity of Dr Grahame Clark's main contention; they merely concern two points which were unnecessary burdens to his argument. Perhaps a further comment may be permitted. In dealing with the influence of pastoral economies on the creation of open spaces it is seldom noticed that swine, besides eating seeds grub up saplings, and that sheep, goats, and horses occasionally gnaw the bark of trees even today and no doubt did so more assiduously in the past. The effect of swine, sheep, deer, and other animals in keeping down undergrowth and saplings, combined with the natural death and the felling by gales of taller trees, would almost completely deforest an exposed area in five hundred or six hundred years (2). In this connexion it may be added that observations of open uplands near Stroud in Gloucestershire have shown that scores of young oaks spring up in some years from acorns, carried there probably by rooks, but none ever grows into a sapling unless directly sheltered from the wind and from grazing animals by thorn bushes. Here the deterrent and destructive action of strong winds has always been operative; and were not animals roaming the region before the coming of neolithic man? R. P. BECKINSALE.

¹ At least 11 of the 14 long-barrows of the 'Cotswold region' that are today in woods or spinneys, command, or would command if the woods were cleared, wide views. Two others of these 14 are near the Welsh border, and their sites are not typical of those in the Cotswold limestone country.

² This is especially applicable to forest growth on exposed oolitic uplands where the shallowness of the soils prevents deep root development, and renders trees peculiarly liable to be uprooted during gales. Even in the lower, more wooded parts of the eastern Cotswolds, the great gales of November 1928 and January 1930 uprooted so many trees that the timber could not be sold at economic prices for several years.

Reviews

ORIENTAL GLASS OF MEDIAEVAL DATE FOUND IN SWEDEN AND THE EARLY HISTORY OF LUSTRE-PAINTING. By CARL JOHAN LAMM. Stockholm: Wahlström and Widstrand, 1941 (*Kungl. Vitterhets Historie och Antikvitets Akademiens Handlingar*, Del 50:1). pp. 114 and 24 plates, 18 text-figures. 7 kr.

Mr Lamm here gives us yet another of his well-illustrated and scholarly studies on oriental glass of the Middle Ages. Taking as his theme (A) fragments of lustre-painted glass of the 9th-10th century found in a grave at Barkarby near Stockholm, and (B) fragments of gilt and enamelled vessels of the later 13th century from Ringstaholm Castle, Hålsingborg Castle, Vreta Monastery (Östergötland), Högby (Öland), Old Lödöse (Västergötland) and Lund, he uses these as a peg on which to hang a valuable account of the lusted and gilt-enamelled groups of glasses to which they belong.

It is curious that, although so many fragments have turned up in Sweden (the fragments from Vreta Monastery alone belong to at least ten vessels), none appears to be recorded from any other Scandinavian country. It would be interesting to know how many, if any, have been found in excavations in Britain. Mr Lamm cites none, but they are the kind of thing which might well lurk unrecorded.

Mr Lamm is convinced that lustre-painting was invented by glass-makers in Egypt, probably in the 4th century. Thereafter, in his view, the Egyptian glass-makers introduced the art of lustre to Mesopotamian potters, who in their turn taught it to the potters of Egypt in Tulunid (late 9th century) times. As however the Barkarby glasses in Mr Lamm's own view are Egyptian work of the 9th-10th century, it is not clear why we must assume that lustre on pottery had to be introduced to Egyptian potters from Mesopotamia at that same date.

A few of the gilt and enamelled fragments in group (B) are ascribed by Mr Lamm to the Aleppo or Damascus glass-works of the later 13th century. The majority, however, including all but one of the Vreta pieces, belong to the Syro-Frankish group, about whose place of manufacture there has been much controversy. Mr Lamm believes them to have been made by Europeans in Syria for export westwards. Some of the pieces bear the signature of one Magister Aldrevandini, and all were no doubt made in his glass-house. Other writers (e.g. E. Dillon) have claimed that the group was made in Venice on the ground that the metal is akin to that of some contemporary Venetian glass. But Mr Lamm, using a completely two-edged argument, endeavours to explain this away by citing textual evidence that Syrian glass fragments were brought to Venice to be used as cullet. If these texts are to be believed—and there seems no reason to doubt them—the similarity of metal would not argue in favour of either origin. The fact remains that not a single example is known from Syria or Mesopotamia and only three from Egypt out of a total of twenty-two. This seems a frail basis on which to postulate oriental origin, bearing in mind the ease with which glasses brought by Crusaders to Syria could have reached Egypt as Saladin's booty.

Those who possess Mr Lamm's earlier book, *Glass from Iran in the National Museum*, Stockholm, will like to note a long list of *corrigenda* to that book given in a footnote on p. 74 of the present work.

D. B. HARDEN

AN INTRODUCTION TO THE ARCHAEOLOGY OF CUZCO. By JOHN H. ROWE. Papers of the Peabody Museum, vol. XXVII, no. 2, pp. XII, 69, 8 plates, 19 text-figs., bibliography. *The Museum, Cambridge, Mass.* \$2.50.

This paper is a further instalment of the publication of the Institute of Andean Research's Projects in Latin America, a number of which have already been noticed in *ANTIQUITY*.

The view that the spectacular ruins and terraces of the Cuzco region are not only of purely Inca construction, but also relatively recent in date, has gained many adherents of late. Mr Rowe argues, with good reason, that they date, at the earliest, from about the middle of the 15th century, when the Inca Pachacuti rebuilt the city itself. It is, therefore, a pressing task to determine the previous history of the area, and to this Mr Rowe has addressed himself. The results he can record so far are not very spectacular, but he has succeeded in establishing the existence of a pre-Inca culture, the Chanapata, whose most characteristic pottery type has rather simple incised and punctate decoration. The few traces of buildings which have been recovered consist of very crudely-built stone walls. It has been found at several places near Cuzco, but its relations to better-known early cultures in other parts of Peru are still obscure, neither does it appear to be an ancestor of the Inca.

Mr Rowe distinguishes another culture, which he calls the Canchon in the body of the paper, but renames it the Killke in an addendum, owing to the discovery of additional evidence at a site of that name. This is not yet adequately illustrated, but the pottery seems to have a generally Inca character, with the ornament carelessly executed. He believes it to precede the classical Inca culture, and probably to date from the early years of the Inca occupation of Cuzco, between about 1200 and the middle of the 15th century. The evidence is not conclusive, but on the whole this is its most probable position, owing mainly to the lack of any association with Colonial pottery. At the same time it must be admitted that it could be contemporary with the characteristic Inca pottery types.

Brief notes are given on a number of new sites in the neighbourhood of Cuzco, but the only one of much interest is the group of terraced circular depressions at Moray, hitherto known only from air photographs. The peculiar site of Piquillacta is included, which is useful because it does not appear to have been described previously in English, though it must be known to most visitors to Cuzco. Its obviously non-Inca character is recognized, but unfortunately no positive evidence about its origin is yet forthcoming.

A useful feature of the paper is a full description and discussion, accompanied by the first accurately-measured plan, of the well-known Inca religious buildings now forming part of the Dominican friary of Cuzco, to whose inmates the whole work is most properly and gracefully dedicated.

G. H. S. BUSHNELL.

OLD ASSYRIAN LETTERS AND BUSINESS DOCUMENTS. By FERRIS J. STEPHENS. *New Haven: Yale University Press. London: Humphrey Milford, 1944.* 33s 6d.

By this title is meant the class of cuneiform tablets generally called 'Cappadocian', this being a second and concluding volume of those in the Yale collection. Besides the hand-copies there are photographic plates of seal-impressions and of envelope pieces preserving the text of enclosed tablets partly retained by contact; one belonged originally to a tablet now in the Louvre. Dr Stephens introduces a novelty in some thin slips of clay which had been enclosed with tablets inside their envelopes, thus adding

a 'second page', as he calls it, to the tablet already filled on both sides. A photograph of one would have been interesting. The introduction discusses also seal-impressions and a question of reading. It is followed by a carefully-revised list of proper names and a rather jejune 'register and description of the texts'. The copies themselves, in 79 plates, are admirably clear and their accuracy, from the expert hands of Dr Stephens and the collaborators named by him, may be taken as irreproachable. C. J. GADD.

SUMERIAN LITERARY TEXTS FROM NIPPUR IN THE MUSEUM OF THE ANCIENT ORIENT AT ISTANBUL. By S. N. KRAMER. *Annual of the American Schools of Oriental Research*, vol. XXIII (1943-4). *New Haven*, 1944.

The author describes this publication of Sumerian literary texts as the first step in the work of editing the large total of unpublished tablets of this class found at Nippur. The second step is to cover the much greater number at Philadelphia, and the third will return over the still formidable quantity left at Istanbul. Dr Kramer's already published studies give a pleasing assurance that none better able could have dedicated himself to this year-long task.

A short introduction (with Turkish translation) divides the fragments among the classes of literature, and again among the separate literary works, which the author himself has contributed so much to distinguishing. Everything that he writes upon this subject proceeds from an unrivalled knowledge of the texts and is wholly to our instruction. It is a pity that equal satisfaction is not given by the 94 plates of hand-copies which are the substance of his book. Their interest and accuracy is beyond doubt, but they are marred by allegiance to questionable principles. The copies are too small (see the author's remarks on p. 47), and they follow what many consider a misguided tradition of trying to reproduce the physical appearance of the tablets, with a heavy sacrifice of clarity. Copying does involve a measure of interpretation; nobody better than Dr Kramer can afford to accept the implied freedom. C. J. GADD.

THE JOURNAL OF ROMAN STUDIES, vol. xxxiv, parts I and 2, 1944. *pp.* 172, viii; 6 plates, 11 illustrations in the text.

The Journal is fortunate in having among its contributors scholars who can present the results of their work in an attractive form without any sacrifice of accuracy in detail. Notable among these is Mr I. A. Richmond, whose *Gnaeus Julius Agricola* is as interesting to the general reader as to the specialist in history. We get from it not only a good picture of Agricola's personality but a fuller appreciation of his military ability than other writers have given us. Thus Mr Richmond finds him remarkable among Roman generals for his appreciation of the value of sea-power—witness his fort-system in Wales and its connecting roads linked up with tidal rivers and the sea. This solved the enormous difficulty of transporting supplies to a remote part of the country. The consolidation of the Forth-Clyde line clearly indicates that a reconnaissance had previously been made considerably further north, so that Mr Richmond is inclined to adopt, in Tacitus' *Agricola*, ch. 22, the disputed reading Taum (= Tay). The employment of auxiliaries, in contrast to legionaries, as an offensive arm was an experiment fully justified by their success in the battle of Mons Graupius.

In *Geographical factors in Roman Algeria* Mr A. N. Sherwin-White is concerned with the relation between human settlement and geographical factors. He points out that for some time before the War studies of provincial history were either 'monuments of minute learning', which gave no general impression at all, or so broad in outline

as to be mainly false. Military history was dealt with well, but the many studies of separate towns were not correlated or brought into a single picture. Moreover, the general conception of a town cannot be, without reservation, applied to African towns. Rostovtzeff's idea of a town as primarily a centre for the leisured classes, government officials and their dependants, is wide of the mark; the small Mediterranean town was chiefly a settlement of peasants, banded together for security. They might go out long distances to work in the fields, and even, at certain seasons, leave their homes altogether for a considerable time. The centre of such a community might, or might not, become a 'market'.

A set of plans, carefully selected and drawn, shows not only the physical characteristics of N.W. Africa and Algeria in particular, but such details as the rainfall and the distribution of various kinds of vegetation. The latter, Mr White points out, is of great importance, for here, as in Germany, it was the forests, not the people or the mountains, which really checked the Roman advance. There is only one important zone where the tendency is against forestation, and that is precisely the area where Roman penetration was most extensive.

In *Rome and the Italian Confederation* Mr A. A. McDonald takes through the social history of Rome and Italy from 200–186 B.C. Early troubles were perhaps partly due to lack of statesmanship on the part of the Senate, but the Latin and Italian nobles were largely to blame. Fearing, as Livy says, the depopulation of their towns, they asked for the abolition of the *ius migrandi*, under which great numbers had gone from the country-towns to Rome and eventually became citizens. Their own numbers must be kept up for military purposes, and so large numbers of the poorer classes were not only recalled from Rome but found themselves pressed into military service, which they hated. The account of the period ends with a discussion of the *S. C. de Bacchanalibus* and an explanation why the suppression of the Bacchic cult was necessary—both Rome and Italy regarded it as a stimulus to political unrest, which was already widespread owing to war-weariness.

Professor Hugh Last, in *The Fiscus: a Note*, takes as his text a remark of Dr Daube in a review of Mr P. W. Duff's book—*Personality in Roman Private Law*. This 'Note', of some 8000 words, discusses all the arguments for and against Mommsen's opinion that the *Fiscus* was owned by the Emperor. The careful reader may learn a great deal from Mr Last, whose arguments are convincingly supported by detailed evidence, about the *fiscus* and the *aerarium*. He concludes that there is not much wrong with the statement of Jolowicz, that the *fiscus* is 'a fund devoted to State purposes, only said to belong to the Emperor'.

Mr F. Pringsheim in *The Unique Character of Roman Classical Law* divides Roman Law into three periods—Archæic (to 150 B.C.); Classical (150 B.C.–A.D. 300) and Byzantine (A.D. 300–565). He finds the middle period sharply distinguished from the others, relying chiefly on three illustrations—laws relating to Ownership, Consensual Contracts, and Betrothal.

Archæology is represented by Miss Jocelyn Toynbee's article on *Greek Medallions*. Mr J. A. Milne's notes on *An Exchange Currency in Magna Graecia* (based on a coin left by Sir Arthur Evans to the Ashmolean), and *Bigati*; Mr O. Davies has a short note on the Date of the Golden Gate at Istanbul.

The summary of work in Roman Britain in 1943 draws attention to the danger to the Wall of Hadrian which is due to recent quarrying.

About half of the volume is filled with reviews and notices. If the length of a review gives any indication of the importance of a book, M. Gelzer's '*Caesar der Politiker und*

Staatsmann’, to which Mr R. Syme devotes 12 pages, is outstanding. Less space is devoted to Cambridge Ancient History, vol. x, but Dr Momigliano has found ample space in which to do justice to this important work.

J. F. DOBSON.

OLD IRISH AND HIGHLAND DRESS. By H. F. McCLINTOCK. Printed for W. Tempest, the Dundalgan Press, Dundalk, 1943. pp. [8], 188, 50 illustrations. 25s.

This beautifully produced volume is a delight both to look at and to handle. Mr W. G. Tempest, as publisher of the book, well deserves the thanks offered him by the writer, who must have been pleased indeed to see his work so admirably set out. That work is a consideration of Irish costume down to the middle of the 17th century, with some chapters on Scottish costume which, with the discussion on the plaid and the kilt, carry the story on to the 18th century. Also—an interesting point—some sidelights are afforded on garb in the Isle of Man. The whole is based on references to dress in Ireland gathered from here, there and everywhere; and, as the author says, on every old picture of Irish people that he could find. The term picture embraces sculptured figures; and the illustrations, ranging from effigies of chiefs on a cross at Clonmacnois to the portrait painted in 1714 by R. Waitt, of Alastair Mohr Grant at Castle Grant, testify at one and the same time the extent of the field covered and the value and attraction of such sources. But although Mr McClintock includes, in an Appendix, the fine description—all colour, gold, silver and bronze—of the dresses of the Ulster Chiefs as set out in the Book of Leinster, A.D. 1150, he has found on the whole that more information exists for the clothing of the lower classes in the period under review than for that of the upper classes. This may be, as he says, regrettable, but to social historians such illustrations as those taken from Derricke’s *Image of Ireland* and the figures from Speed’s Map of Ireland, 1610, are very welcome. So too is the reproduction of Albrecht Dürer’s delightful drawing, preserved in the National Gallery in Dublin, of ‘Irish Soldiers and poor people’, though here one must remember, as Mr McClintock points out, that Dürer was never in Ireland, and that the figures must therefore have been drawn from Irish people presumably clad in their native costumes but far away from their natural surroundings, perhaps, thinks Mr McClintock, pilgrims encountered by Dürer in the neighbourhood of the Rhine. All of which suggests more than one interesting line of enquiry. But it is just in the matter of dress of the ‘common folk’ that one seems to detect in Mr McClintock a slight tendency to a bias in judgment; a very human tendency in writing on a national subject. The bulk of Irish writings which have come down to us, he points out in his introduction, relate to much earlier days and are written under the influence of a romantic conception of those days; so that it is no easy task to separate the sober truth from the poetic fiction. Therefore, he continues, most of the descriptions of Irish and Scots costume are of necessity taken from English writers. They, he most truly says, will almost certainly give a fuller picture of what they have observed, since to them it will be strange, or partially so, than to native writers of what is familiar to them. But if, as he says later on, the object of English writers was to discredit Ireland and the Irish, holding land and people up to contempt, this must be allowed for and guarded against in assessing the value of their descriptions. No Irish or Scottish reader is likely to overlook any possible note of contempt suspected to lie behind English comments on the civilization or lack thereof to be found in the two adjacent kingdoms. But Mr McClintock is perhaps a little less than fair in his insistence ‘on the vilification and contempt that colour most English writings about

Ireland in Tudor times'. Both are undoubtedly to be found, but malice is not necessarily at the back of every statement, even when such a statement is not laudatory. Mr McClintock has for example a good deal of much interest to say concerning the saffron coloured skirt as it appeared in Ireland and in Scotland. He is almost certainly correct in his assumption that the dye came from the plant known as the saffron crocus, not, as is so often stated, from a lichen or heather tip; and it would appear from the evidence he has collected that the plant grew more freely or was more extensively cultivated in Ireland than in Britain. It is indeed supposed that it was known in England as early as the reign of Edward III, introduced after the traditional style coiled in the hollow of a pilgrim's staff; but it is also generally thought that it was not grown much until towards the end of the reign of Elizabeth, which agrees with Mr McClintock's thesis. Mr McClintock however goes on to refer to the statements by Spenser and Fynes Morrison to the effect that the reason for dyeing shirts in saffron in Ireland was to keep away lice, and he adds that these statements are supplemented by a report from the Venetian Ambassador in 1531, a report 'probably based on English information'. Here, says Mr McClintock, we have an example of the many 'loose statements about Ireland which were bandied about at this time'. But as he himself shows, saffron had been used as a deterrent to lice as far back as Pliny. It may or may not have been so used in England. But whether this was so or not, surely neither Spenser nor Morrison could have meant to imply that lice were peculiar to Ireland, just what might be expected to be found there; they may even have been genuinely interested in the use of saffron for the purpose indicated, since the prevalence of lice in England could hardly have escaped their notice. For England, from court to cottage, was lice-ridden then and later and fine ladies were wearing honey lockets to serve as lice traps well into the 18th century.

Mr McClintock is careful to distinguish between the true pure yellow hue given by the saffron plant, well shown in a tunic in the coloured frontispiece, and the yellowish brown of the kilts of pipers in Irish regiments, which is the official 'saffron'. As in England, woad supplied blue and the madder plant red; while green was derived from the mineral verdigris. It would be of interest to know more of the use of lichens for dyes; and of the production of the attractive sounding 'golden, pied, streaked grey and blue ribbed' hues to which Mr McClintock refers. A vast variety of shades beyond the primary colours were also to be found in Tudor England; but it may very well be that the use of lichens and so forth for dyes was better understood, and that they were more extensively employed in both Ireland and Scotland than in England under the Tudors, as was certainly the case later.

In the matter of the actual form of dress some of Mr McClintock's most interesting remarks refer to the cloak. This, he allows, was admired by the English, and cloaks were exported in large numbers. No doubt it was a universal garment, worn by all classes alike, though made in varying qualities. But the salient fact was that rich and poor alike needed protection from rain and cold and nothing supplied this better than the circular, sleeveless, garment made of cloth, frieze or that shaggy long-piled material which may have made a man look like a bear but was probably rain and wind resisting. The plaid, the six foot long piece of Tartan cloth, served the same purpose as the cloak but had nothing to do with it. But there was a connexion, admirably worked out by Mr McClintock, between the lèine or tunic, and the belted plaid which was the beginning of the kilt.

Many antiquaries will regret that Mr McClintock, for good and sufficient reasons, which he gives, felt unable to use, in the wide field over which he has ranged, the

Gaelic in Erse. They will echo his wish that these sources may eventually be utilized, as part of a general study of Irish social life in early days. It is a study to which his own volume is a valuable contribution.

GLADYS SCOTT THOMSON.

ARCHAEOLOGY OF NORTHWESTERN VENEZUELA. By ALFRED KIDDER, II. Papers of the Peabody Museum, Harvard University, vol. XXVI, no. 1. Published by the Museum, Cambridge, Mass., 1944. pp. 178, 18 plates, 3 tables, 62 text-figs. Dollars 3.75.

Dr Kidder visited Venezuela in 1933 and 1934, and this volume records the results of his excavations and reconnaissance. Their main outline was already known, since he generously made them available to Osgood and Howard before publication (see *An Archeological Survey of Venezuela*, noticed in ANTIQUITY, March 1945), but the full publication is none the less welcome.

The most important section deals with the excavation at Los Tamarindos, on the La Cabrera Peninsula, Lake Valencia, which resulted in the definition of two well-marked stages. The earlier, described as the La Cabrera phase, is not certainly known elsewhere, but the later, the Valencia phase, has been found at various places round the Lake, particularly in the mounds excavated by Bennett, Osgood and others near its eastern end. The La Cabrera phase has primary burials and two types of pottery, grey ware, plain or polished, and red ware. A notable feature is the presence of elbow pipes in polished grey ware. The Valencia phase has a predominance of secondary urn-burials, and only one pottery type, named Valencia Red, which includes the characteristic female figurines with laterally-extended heads. Painted ware is extremely rare in both phases. The succession is skilfully correlated with changes in level of the Lake, and the whole excavation is described with admirable clarity.

Lesser excavations were done at two sites near Carache in the State of Trujillo, but conditions did not permit such a complete study as that of Los Tamarindos. Primary burials were found, some of them covered by stone slabs, and it was possible to reconstruct from sherds vessel forms of several characteristic pottery types, including painted wares, which will be useful for comparison in future work.

There are two introductory chapters on the geographical, and historical and ethnological backgrounds. The latter gives a useful general idea of culture at the time of the Conquest, but attempts to relate archaeological remains to historical peoples have so far been notably unsuccessful.

The excavation accounts are followed by a chapter on reconnaissance in the States of Merida and Trujillo, comprising an account of objects in museums and private collections, with notes on the few known sites, which serves mainly to show how little is known about the region. The specimens include some female figurines with laterally-extended heads, which are obviously related to those of the Valencia phase.

Finally there is an attempt to relate the Venezuelan cultures to one another and to those outside. The greatest trouble has been taken to point out clues which may indicate relationships, but Dr Kidder himself admits that our present knowledge is far too sketchy to permit definite conclusions. His work on this subject is to some extent superseded by that of Osgood and Howard, already mentioned, particularly as regards the Orinoco Basin, where their own explorations have provided new evidence.

A few misprints and minor errors are noticed, including the following. On p. 52, burial 33, the reference is to fig. 8, not fig. 9. On p. 54, left-hand column, line 10, for stratum 3 read 4. We hope that 'septi', as the plural of septum, two lines below fig. 33

p. 71, is also a misprint. On p. 95, bottom of left-hand column, pl. v., figs. 29 to 36, certainly seem to be rim sherds, but they belong to the La Cabrera phase and do not appear to have anything to do with Carache, the locality under discussion. Relevant figures can not be found on any other plate.

G. H. S. BUSHNELL.

PATTERNED TEXTILES IN PHARAONIC EGYPT. By ELIZABETH RIEFSTAHL.
Brooklyn Museum, 1944. pp. 56.

After a brief but excellent account of the dress of the Ancient Egyptians the author discusses the textile patterns of the Old and Middle Kingdom, the patterned textiles of the New Kingdom and patterned textiles in relief and paintings of the 18th and 19th dynasties and the later Pharaonic period. The illustrations are admirably chosen and finely reproduced, and the descriptions and discussions concise, to the point and well documented. The work will be invaluable to students of Egyptology and the weaver's craft and should have a wide appeal to lovers of art. Rags and tatters, as are most of the actual textiles, these pages reveal something of the beauty which made them treasured possessions of Pharaohs and their courtiers so far as that can be conveyed without the use of colour.

The material includes several fragments of outstanding interest: the braid, in red, brown and yellow from the horse trappings of Senmut, counsellor of Queen Hatshepsut; famous fragments of robes from the tomb of Thotmes IV, including an heirloom from Amenhotep II, whose cartouche stands among the lotus and lily flowers woven in tapestry of many colours, red, blue, green, yellow, brown and black; the braided tunic of Kha, architect in the times of Amenhotep III and IV, and his fringed cloths with lotus and bud designs; three tunics from the tomb of Tutankhamun, the first decorated with warp-weave braids in many coloured geometric patterns, blue predominating, and borders embroidered with palmettes, sphinxes, griffins and hunting scenes, mainly green and white: the second, in yellow tapestry weave striped in green and brown with bands of flying ducks in green (not illustrated); and the third in patterned tapestry weave throughout with bands of rosettes, cartouches, inscriptions and protecting vulture wings on neck and shoulders, once magnificent in reds and blues; his glove in feather pattern, tapestry woven; the 'girdle' of Ramses III in double weave with rows of *ankh* signs in red, blue and white and touches of green and yellow.

After this review the author faces up to the question whether we can still believe that the habitual garments of the Egyptians were white as shown in temple and tomb. She concludes that 'there is a strong possibility that the Egyptians did wear pure white in life'. Before the time of the New Kingdom only foreigners, Libyans, Nubians, Syrians, Cretans, are represented with heavily patterned garments and the fact of the first appearance of actual textiles in pattern during this period suggests that 'the art of weaving in pattern may have been an importation during the New Kingdom' but the wearing of patterned garments was a Syrian fashion which never became general with the native population of the country. In conclusion, she observes that when remains of patterned textiles again appear in Egyptian graves of the Roman and Coptic period they are 'in design and usually also in colour for the most part typical of the orientalized Hellenism that marked the art of the entire Eastern Mediterranean in the first centuries after Christ'. Here again the fashion is set by Syria as shown by M. Pfister's discovery of tunics with purple decoration at Palmyra a century before their appearance in Egypt. With this difference, that in the first case, the Egyptians, to whom wool was repugnant, dyed their own linen in spite of difficulty, in the latter they accepted wool, imitated the

true murex purple in their own madder and indigo, mass produced it and ended in a riot of colours. But this is to digress far from the Pharaohs. A few comments on minor problems in the book may be added.

The earliest Egyptian textiles are here referred to as of linen but it should be remembered that the 1928 footnote added to the description of the Badarian fabrics (the Badarian civilization, p. 67) states that cross sections of fibres from several of them showed that they were not of flax; whether any further examination has been made is not known to me. In describing the coverlets from the tomb of Kha the author says 'the looping here seems to consist of extra warp threads which are carried over several wefts, etc.'. From the illustrations I should judge that the loops consist of extra wefts, 10 rows of looping in the case of Relazione, fig. 114, and 9 rows in the case of Relazione, fig. 115.

The author is puzzled because Howard Carter's 'vulture with outspread wings' is not clear on the photograph which gives the *front* of the tunic. Notes with a pencil drawing by Howard Carter which I was privileged to see in the Ashmolean Museum, Oxford, showed that the body, tail and legs of the vulture were on the *back* of the tunic with the wings spread over the shoulders. The tips of the flight feathers do come over on to the front, on either side of the floral collarette, but cannot be distinguished on the photograph.

The author's remarks on dyeing are less happy. The statement that 'blue seems to have come from Egyptian woad' ignores the difficulties in the way of this identification. Woad, *Isatis tinctoria*, is not an Egyptian plant and it seems more probable that the older writers were right in identifying the blue with *Indigofera argentea* which grows plentifully in the Nile valley, but no chemical test has yet been devised by which the indigo from different plants can be distinguished with certainty. Other references suggest that the Egyptians used no mordant in their linen dyeing, but for madder this is not possible. The procedure was no doubt primitive, as proved by M. Pfister; but we may allow them at least a bit of alum, by which to fix that beautiful though weak shade which has survived on their textiles to this day.

The statement that the upright loom was employed at Susa in the beginning of the third millennium needs proof. Contenau is cited in support of it but his remarks, based on the character of the linen, were but tentative: 'Il me semble que l'ouvrier devait se servir d'un metier analogue à celui en usage pour la haute lisse, etc'.

It is delightful to see the first use in modern art of the designs recently recovered from the embroideries of Tutankhamun, i.e. the palmette design printed both on the flyleaf and the cover of this attractive monograph.

GRACE M. CROWFOOT.